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Nuclear family dynamics: Predictors of childhood crushes and adult sexual orientation

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NUCLEAR FAMILY DYNAMICS: PREDICTORS OF CHILDHOOD CRUSHES AND ADULT SEXUAL ORIENTATION

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ABSTRACT

This study investigated the effects of nuclear family dynamics on childhood crushes and adult sexual orientation. Retrospective data was gathered via an anonymous survey administered using a computer-assisted self-interview program. Data was collected from 1,242 non-transsexual males (age range 18-86) and 2,201 non-transsexual females (age range 18-78). Management of parental disagreements, maternal attitude about sex, parental composition of the nuclear family, maternal affection, and parental demonstration of affection predicted the sex of childhood crushes in males and/or females. Management of parental disagreement, parental attitude about sex, nudity practices within the home, parental demonstration of affection, and parental composition of the nuclear family predicted adult sexual orientation in males and/or females. Crush frequency as a child, opposite-sex crushes before/after puberty, and same-sex crushes after puberty predicted adult sexual orientation in males and/or females. These results suggest that nuclear family dynamics and childhood/adolescent crushes affect adult sexual orientation.

Keywords: nuclear family, early crushes, adult sexual orientation, conditioning, critical period learning

CHAPTER ONE

LITERATURE REVIEW

Human sexuality exists as a complex phenomenon that encompasses biological, environmental, and psychological factors. A relatively new psychological study, sexual attraction is the subject of an infamous and heated debate. In one corner of the proverbial boxing match stands, from 1640s France, René Descartes, a philosopher, mathematician, and firm supporter of the nature argument. This rationale claims that genetics, hormones, and neurochemistry explain human sexuality). In the opposing corner stands, from 1690s England, John Locke, a philosopher, physician, and firm supporter of the nurture argument. This rationale claims that human sexuality is learned from the environment through conditioning).

So far in the match, the nativist is favored to win. However, it is now time to see what the empiricist – the underdog – has to offer. The current study examines nuclear family variables to determine whether or not such aspects of the environment play a role in the development of childhood crushes and/or adult sexual orientation. These variables include: maternal affection, paternal affection, parental demonstration of affection, nudity practices within the home, parental composition of the nuclear family, quality of parental relationship, management of parental disagreement, maternal attitude towards sex, and paternal attitude towards sex.

Attachment

"Man is by nature a social animal; an individual who is unsocial naturally and not accidentally is either beneath our notice or more than human" (Aristotle, 350BCE/1999, p. 6). Relationships consume our lives, permeate every aspect; they are intricate and multifaceted. Family members, life partners, friends, colleagues, neighbors, and casual acquaintances: each relationship is unique. Each relationship involves interpersonal attraction, the zeal and fortitude of one's attitude toward another individual, the magnetism that pulls people together. According

to Bowlby (1958), the earliest bonds exist between children and their caregivers. After all, nearby caregivers who are receptive to a child's needs improve that child's chance of survival (Bowlby, 1958).

To further explore this idea, Ainsworth and Wittig (1969) created a research laboratory procedure: the Strange Situation. The protocol placed a mother and child (ranging from 12 to 18 months of age) into an unfamiliar room filled with toys. Researchers watched through a one-way mirror as the child underwent eight episodes of departure and arrival. Based on the observed behaviors, Ainsworth categorized the children into three attachment categories: secure, insecure ambivalent, and insecure avoidant (Ainsworth, Blehar, Waters, & Wall, 1978). Researchers later identified a fourth category: insecure disorganized (Main & Solomon, 1986).

Conditioning. Ainsworth and colleagues proposed that humans are innately programmed to develop attachments. Others have offered a different explanation: humans learn to develop attachments. Lorenz, an Austrian ethologist, studied the attachment behaviors of birds. He quickly concluded that, most birds do not intuitively know their own species. Rather they "must be conditioned" to recognize other members (Lorenz, 1937, p. 262). In a classic experiment, Lorenz divided a clutch of Greylag goose eggs in half. One half hatched underneath their female goose, while the other half hatched in an incubator beside Lorenz. The former group followed their biological mother. The latter group followed Lorenz. This phenomenon is referred to as "imprinting" (p. 262).

Dollard and Miller (1950) suggested that infants attach to their caregiver through feeding. This could occur through classical conditioning: the caregiver transitions from a neutral stimulus to a conditioned stimulus by providing milk (an unconditioned stimulus), which produces pleasure (an unconditioned response). Other natural examples of classical conditioning in humans include

food-aversion learning, sexual conditioning, and fear conditioning (Domjan, 2005). However, operant conditioning receives greater support (Dollard & Miller, 1950). Feeding removes hunger (negative reinforcement) and provides the infant with comfort (positive reinforcement). Thus, the infant comes to associate closeness with the caregiver with the absence of hunger. This reinforcement applies to any physiological need and helps establish a secure attachment.

Children with secure attachment occupied approximately 70% of Ainsworth's study (Ainsworth et al., 1978). These children demonstrated separation anxiety, stranger anxiety, and a positive reunion with mother. The remaining children within the study were determined to have an insecure attachment. Ambivalent children demonstrated heightened separation and stranger anxiety. Yet, upon reunion with their mothers, the child resisted their contact. Avoidant children did not demonstrate separation or stranger anxiety, nor did they show much interest in their caregiver's return. As later determined, disorganized children may resist and/or avoid their caregivers. Thus, recurring positive experiences help children learn to trust others and develop a secure attachment. In direct opposition, recurring negative experiences communicate that others are not reliable. In this way, they make children more susceptible to developing an insecure attachment.

However, Lorenz (1937) previously demonstrated that, in some species, a strong bond to a caregiver could develop without the exchange of sustenance. Drawing on Freud's classic research, Bowlby (1988) hypothesized that other phenomena (e.g., "love relations, separation anxiety, mourning, defence, anger, guilt, depression, trauma, emotional detachment, sensitive periods in early life") could replace the dependency theory (p. 25). This hypothesis received strong support. Wanting to explore the outcome of affection, Harlow (1958) conducted a highly controversial experiment with rhesus monkeys. Separated from their mothers shortly after birth, the monkeys

were placed in a cage with two "surrogate" mothers: a wire mother and a terry cloth mother. The monkeys could only nurse from one of the mothers. Ultimately, even when the wire mother provided sustenance, the monkeys preferred the terry cloth mother. This demonstrated that, in the matter of attachment, emotional affection surpassed physiological sustenance.

Romantic attachment. The attachment styles seen between children and their caregivers have been identified in subsequent connections (Hazan & Shaver, 1987; Sroufe, 2005). Evidence from a 30-year longitudinal study supported the notion that infant attachment corresponds to variations in peer competence, adult personality, and romantic relationships (Sroufe, 2005). Secure children may grow to become secure adults, ones who are capable of setting boundaries, expressing empathy, and creating meaningful relationships. In contrast, insecure children may remain insecure as adults. Ambivalent adults fear that they are not truly loved. They may also become unpredictable, providing closeness one minute and withdrawing it the next. Avoidant adults remain emotionally, and perhaps even physically, distant; they may prefer to keep their independence. Finally, disorganized adults may become frustrated when their need for emotional affection goes unmet. Despite craving closeness, they may be inconsiderate, suspicious, or violent toward their partner.

Research suggests that these patterns of adult romantic attachment are nearly universal (Schmitt et al., 2004). However, attachment styles formed in childhood do not necessarily persist into adulthood (Hazan & Shaver, 1987). After all, a vast amount of time elapses between the two life stages, and multiple variables engage in complex interplay (Sroufe, 2005, p. 365).

Types of Attraction

As defined above, interpersonal attraction is the allure between two (or more) people. Researchers should design further studies to determine what constitutes friendship, a lifelong

partner, or a crush. Sternberg (1986) proposed a triangular theory of love. At each corner of the triangle stands a component of love: intimacy, commitment, and passion. According to Sternberg, combinations of these components create seven forms of love. The mixture of all three components creates consummate love, the ideal recipe for a romantic couple. This form of love can provide the courage to be vulnerable, can "bear the whips and scorns of time," and can light one's inner fire (Shakespeare, trans. 2009, p. 1119).

Liking, or friendship, calls for intimacy only (Sternberg, 1986). Individuals feel connected, warm, and trusting. However, they are not sexually attracted, nor have they decided to love and stay in love. Empty love merely requires commitment (Sternberg, 1986). In some situations, familiarity and desire have not yet been given the opportunity to develop. This is often the case in arranged marriages, which accounts for why many U.S. citizens find the practice void of romance. Empty love also arises when a strong relationship deteriorates over time, losing its proverbial spark. Finally, when an individual feels passion alone, that is the formula for infatuation, for a crush (Sternberg, 1986).

Many people have experienced a crush through the rapid heartbeat and sweaty palms which transpire when one finds someone romantically attractive. In fact, research shows that children as young as four are capable of experiencing passionate love (Hatfield, Schmitz, Cornelius, and Rapson, 1988). The brain secretes a cocktail of chemicals (e.g., dopamine, epinephrine, and oxytocin) that elevates mood and energy levels. It is pleasurable and exciting, but it is short-lived. Crushes generally last "from one to six months" (Hurlock & Klein, 1934). During this time, the relationship must develop, or it will wane. Crushes do not need to be aphrodisiac in nature. A student could become captivated with a peer, a teacher, a celebrity-- not because of romantic feelings, but because of admiration (Pickhardt, 2012). Take, for example, the girl who admires her

cheerleading coach. She adores her idol, holds her with high esteem, and wants to imitate her actions. Identity crushes are independent of romantic crushes, and it is quite possible for an individual to be captivated by a member of the same-sex while also infatuated with a member of the opposite-sex. However, romantic relationships are an essential part of the transition from childhood into adulthood.

Critical Period Learning

The media portrays romantic adolescent relationships in an ideal and almost erotic way. In her *Twilight* series, Meyer (2007) even goes so far as to create human characters that imprint, which she explains as being an involuntary mechanism which unconditionally binds one being to another for life. Although some might think it to occur only in the world of fantasy, imprinting is zoological phenomenon. For example, young goslings imprint, coming to recognize another animal (e.g. their mother, an ornithologist) as a source of trust (Lorenz, 1935/1937). Lorenz stated that imprinting differs from operant conditioning for two reasons. First, imprinting is limited to a very definite period of time. Second, imprinting is "totally irreversible," while operant conditioning "can be unlearned or changed, at least to a certain extent" (p. 264). This led to the idea that there are *critical periods* in brain and behavior development.

The frequency of crushes certainly increases throughout adolescence, a time of many physical and emotional changes. However, as mentioned earlier, adult attachment style is typically rooted in childhood experience. Harlow, Dodsworth, and Harlow (1965) established that the development of attachment primarily occurs within such a critical period. In a separate series of experiments, the researchers socially isolated rhesus monkeys after their birth. The monkeys underwent social isolation for a period of time: three, six, or twelve months (p. 91). The following quickly became apparent: the more secluded the monkeys were, the more emotionally, socially,

and sexually impaired they became. An attachment deficit could be reversed if social isolation lasted less than three months. However, between three and six months, the impairment became permanent.

Bowlby (1951) suggested that a critical period for developing attachment also exists in humans. After reviewing studies conducted on young children in foster homes, hospitals, and institutions, Bowlby argued that "prolonged deprivation of…maternal care" elicits long-term negative consequences for a young child (p. 46). If, before "the age of 2½ years," a child lacks the opportunity to form an attachment with a caregiver, that child will be at an increased risk for developing psychopathy (e.g., deception, irritability, lack of remorse) (p. 49).

Language. Studies of feral children also have demonstrated the consequences of social isolation in humans. Myth and fiction narratives have portrayed feral children for generations (e.g., Romulus and Remus, Mowgli, Tarzan). The stories paint an idyllic image: nurturing animals raising typical-developing children. Unfortunately, the reality is far from picturesque. When discovered in 1970, 13-year-old "Genie" became one of the most well-known cases of feral children (Garmon, 1997). Restrained by her father to a potty chair, Genie spent the majority of her life alone in her bedroom with minimal stimulation. Intensive intervention focused on language acquisition and social skills. At her educational peak in the mid-1970s, Genie had developed a verbal vocabulary of at least 200 words. However, she demonstrated severe speech articulation errors and a poor understanding of English grammar. This was believed to support the hypothesis of a linguistic critical period (Lenneberg, 1967). Whether abandoned, lost, or confined, feral children are deprived of language exposure. If this deprivation persists beyond puberty, it becomes increasingly difficult to obtain the basic foundation of communication. The same can be said for

children with hearing loss. Tomblin, Barker and Hubbs (2007) found a negative correlation between age at cochlear implantation and speech/language learning.

The idea of critical period learning is supported by neuroscience. During prenatal development, the human cortex generates billions of neurons and synapses, structures which allow neurons to communicate (Ulyings, 2006). As humans grow, the brain prunes away the weaker synapses in order to function efficiently. While the largest period of synaptic pruning occurs early in life (approximately between 4 and 10 years of age), this process continues throughout adulthood.

It stands to reason that learning to be a sexually functional adult is also "subject to critical period learning," a hypothesis supported by the research conducted by Griffee et al (2014). Although it may be hard to acknowledge, children are sexual beings (Haroian, 2000). Toddlers express curiosity about where babies come from, as well as private body parts. They learn the concept of modesty and the difference between public and private behaviors (Haroian, 2000). When children enroll in elementary school, they may prefer same-sex friends or joke about bathroom humor. They may ask questions about development, relationships, and sexual behavior. They may even masturbate (Haroian, 2000). These are normal behaviors, and they occur prior to the hormonal and physical changes which accompany puberty.

Interpersonal Attraction

According to social psychologists, a variety of factors may increase the likelihood of a crush and lead to interpersonal attraction. The best predictor appears to be propinquity, the proximity between people. Traditionally, researchers examined the effect of physical distance on relationships. Festinger, Schachter, and Back (1950) studied the propinquity effect in two housing complexes at Massachusetts Institute of Technology. Female residents were asked with which residents they most associated. As was later established, the closer the residents lived, the friendlier

they became with one another. Neighbors were most likely to interact, while residents living on separate floors were least likely to interact. In a different study, when subjected to an alphabetical seating arrangement, students proved more likely to befriend peers who sat close to them (Segal, 1974). Thus, the more one interacts and familiarizes with an individual, the more likely they are to become friends with them.

With 74% of adult internet users actively engaging in the social media sensation, the effect of psychological distance must also be explored (Pew Research Center, 2014). The invention of the Internet has changed how people interact with one another. Humans strive to form emotional bonds with other individuals. Social networking allows individuals to converse with others around the globe, and it has quickly become an accepted method of finding friends and significant others. In online communities, individuals engage in discussion, exchange pictures, and share information. Thus, online relationships can foster an emotional closeness (Cooper & Sportolari, 1997).

Whether one engages in face-to-face or electronic communication, humans have a tendency to make connections with those who are similar to themselves on a wide variety of characteristics (e.g., race, religion, personality, intelligence, interests). Byrne and Nelson (1965) brought participants into a lab and asked them to express their attitudes on a number of topics. These attitudes were recorded and evaluated. The participants were then paired, asked to interact, to share their attitudes on the topics that they have independently evaluated. At the conclusion of the experiment, the participants were asked to rate the attractiveness of the other person. As expected, as the proportion of similar attitudes increased, so too did the ratings of attraction. Although friendship and love can transcend differences, humans tend to conform to this matching principle and seek close connections among others with similar attributes.

One of those attributes is – not surprisingly – physical attractiveness. Humans like pretty people. One reason for this is that people assume physically attractive individuals possess other socially desirable traits as well (e.g., trustworthiness, personal warmth, competence) (Cialdini, 2006). Clifford and Walster demonstrated this physical attractiveness stereotype in their 1973 study. The researchers gave fifth-grade teachers a file with identical information about a child. The only difference between the files was the attachment of either an attractive or unattractive photo. The teachers were asked to predict how well the child would do in school. Unfortunately, the teachers perceived more attractive children to have more educational and social potential.

Sex and Gender

The words "physical attractiveness" may bring to mind images of tall, muscular men or dainty, youthful women. However, because the terms "man" and "woman" can be ambiguous, it is important to establish some working definitions. In humans, different factors present at birth determine an individual's biological sex. The presence or absence of a Y chromosome is the primary determinant. However, other biological factors, including hormones, internal sex organs, and external genitalia, also exert influence on an individual's sexual determination (American Psychological Association, 2011). Biological sex is typically categorized as male, female, or intersex, a combination of male and female characteristics.

Biological sex is often confused with gender. Biological sex allows humans to reproduce, typically through fertilization following sexual intercourse, or coitus. In contrast, gender is a social construct determined by the environment. It encompasses cultural factors, including: societal roles, internal identity, external expression, and the perception of others (American Psychological Association, 2011). Gender is typically categorized as masculine, feminine, or androgynous, a combination of masculine and feminine characteristics.

Gender Roles

After examining survey data, Gilmour (1988) found that males and females prefer different attributes in a potential mate. The top five traits selected by men were as follows: physical attractiveness, sexual ability, warmth and affection, social skills, and homemaking skills. In contrast, women sought men with the following qualities: a history of achievement, leadership ability, job skills, earning potential, and sense of humor. These patterns appear to coincide with an evolutionary perspective and traditional gender roles. Evolutionists hypothesize that men are programmed to "produce as many offspring as possible," while women are encoded to "invest heavily in a few offspring" (Cunningham & Russell, 2004, p. 132). For both strategies, the goal remains the same: to increase the likelihood that offspring will attain reproductive maturity. With this quantity-versus-quality debate in mind, it follows that men would attach greater importance than women on young, vigorous, and healthy mates. Likewise, it seems reasonable that women would be more concerned than men about dedicated, wealthy, and ambitious mates.

Although evolutionary research has primarily focused on traditional gender roles, Cunningham and Russell (2004) also examined nontraditional gender roles. Gender roles have changed significantly throughout the years. The researchers sought to determine whether gender roles could influence "the evolved, gender-specific partner preferences" previously described (p. 136). The results indicated that, indeed, masculine participants rated physical attractiveness higher than feminine participants, whereas feminine participants rated commitment higher than masculine participants (p. 141). It was not determined whether the desired partners were of opposite- or same-sex. Researchers are left to wonder what determines the sex of a crush, or rather, since the majority of humans identify as heterosexual, what increases the likelihood of a same-sex crush.

Same-Sex Crushes in Males

In their 1969-1970 study, Bell, Weinberg, and Hammersmith (1981) investigated the development of sexual preferences in men and women. The researchers recruited participants living in the San Francisco Bay area (i.e., 686 homosexual males, 317 heterosexual males, 293 homosexual females, and 140 heterosexual females) and conducted face-to-face interviews. The interviews consisted of 200 questions about the following variables: parental traits, parental relationships, parent-child relationships, parental identification, sibling relationships, sibling identifications, gender conformity, grade school experiences, and high school experiences.

An analysis of the data provided by white males revealed that the strongest predictor of homosexual adult sexual orientation was childhood gender nonconformity: "how much respondents disliked typical boys' activities," "how much they enjoyed typical girls' activities," an "how 'masculine' or 'feminine' the respondents said they had been while they were growing up" (Bell et al., p. 76). Boys who perceived themselves to be unlike their male peers were more likely to experience homosexual arousal and to participate in homosexual activities, whether these first occur in childhood or in adolescence (p. 76). They were also more likely to feel different.

The path model for black males largely replicated the model for white males. Childhood gender nonconformity was, again, the strongest predictor of homosexual adult orientation. Yet, for this population, "*activities* rather than feelings" played a more significant role (Bell et al., 1981, p. 195).

Same-Sex Crushes in Females

For the white female respondents of Bell et al.'s (1981) study, childhood gender nonconformity ("how 'masculine' or 'feminine' the respondents said they had been while they were growing up," "how much they had enjoyed typical girls' activities and typical boys' activities," and "whether they had ever dressed up in male clothing and pretended to be a boy")

was the second strongest predictor of homosexual adult sexual orientation (p. 147). The strongest predictor was adolescent homosexual involvement. However, the two variables were so strongly correlated (r = .81), the authors stated that they were representations of "the same thing" (p. 169).

Black and white females demonstrated theoretically parallel path models (p. 205). Girls who perceived themselves to be unlike their female peers were more likely to be involved in homosexual adolescent activities, to experience homosexual arousal in childhood, and to report feeling isolated from other girls in grade school (Bell et al., 1981, p. 226)

In a more recent study (based on a subset of the data used in the present study), women who experienced same-sex crushes before puberty were 24 times more likely to engage in same-sex activities as adults (Robinett, 2012, p. 26).

Gender Nonconformity

To overcome the potential limitations in Bell et al.'s retrospective research (e.g. testimony flaws), Green (1985) conducted a longitudinal study. He initially evaluated 44 referred-male participants and 34 volunteer-male participants. The boys ranged in age from 3½ to 11-years-old (M = 7½). Boyhood behaviors were evaluated using a multiple-choice questionnaire. The referred-group consisted of boys who "showed extensive interest in cross-dressing, preferentially role-played as females, frequently played with female-type dress-up dolls, had a primary female peer group, expressed the wish to be girls, and avoided rough-and-tumble play and sports" (p. 340). The boys were reevaluated in adolescence or early adulthood (age range of 13 to 23) using a semi-structured interview to evaluate sexual orientation. It was not determined whether any participants were transsexual. Still, Green provided further evidence for the correlation between childhood gender nonconformity and adult sexual orientation in males. Of the referred-group, 68% reported gay fantasies and 80% demonstrated gay behaviors. Using the DSM-V, many of these participants

would receive a diagnosis of gender identity disorder today. In contrast, no comparison male reported either gay fantasies or behavior (p. 340). From here, scientists need research on the causes of childhood gender nonconformity, same-sex crushes, and homosexual adult sexual orientation.

Sexual Orientation

Before exploring the causes of a particular sexual orientation, one must first determine what is meant by the term "sexual orientation." Sexual orientation refers to who (based on sex and/or gender) an individual finds physically and emotionally attractive. These enduring patterns have historically been divided into three categories of sexual desire: heterosexual, bisexual, and homosexual. Kinsey, Pomeroy, and Martin (1948) created the first sexual orientation rating scale. On the continuum, those who received a 0 were described as "exclusively heterosexual," those who received a score of 6 were described as "exclusively homosexual," and those who received a score of 3 were described as "equally heterosexual and homosexual."

This rating scale has met with criticism. The Kinsey rating scale measures solely an individual's sexual activity. However, sexual orientation can manifest in many different ways. To resolve this, Whalen, Geary, and Johnson (1990) theorized that sexual orientation exists as an orthogonal matrix. The researchers believed that the two orientations are not contrary and that they can coexist simultaneously within an individual. For example, an individual could self-identify as heterosexual, yet still entertain thoughts or behaviors that correspond to a homosexual orientation.

Vrangalova and Savin-Williams (2012) sought to evaluate the adequacy of the historical three-prong approach to sexual orientation. The researchers collected data on 1,676 participants through an online survey and utilized two measures of sexual attraction: same-sex and opposite-sex. The researchers found that sexual orientation is better categorized into five groups than three groups. The five sexual orientation identity groups were as follows: heterosexual, mostly

heterosexual, bisexual, mostly gay/lesbian, and gay/lesbian (Vrangalova & Savin-Williams, 2012). The researchers also gathered evidence supporting the notion that sexual orientation is a "continuously distributed" and "two-dimensional" characteristic (p. 96).

Biological Basis

As with attachment, some scientists propose that humans are innately programmed with their adult sexual orientation. Research over 20 years has focused predominately on the search for genetic markers. Twin studies are considered a valuable tool in this endeavor, because they allow for the control of genetic influences. Several studies have compared monozygotic (identical) twins with dizygotic (fraternal) twins. For example, Kallmann (1952) examined 37 monozygotic male twins and 26 dizygotic male twins. He reported that, for dizygotic twins, there was an 11.5% correspondence regarding homosexuality. For monozygotic twins, the correspondence rate for homosexuality was staggering: nearly 100%. However, no other study of this magnitude has found such high correspondence rates (King & McDonald, 1992).

If the correspondence rate for homosexuality in monozygotic twins is not 100%, then it goes to reason that there must be environmental influences. King and McDonald (1992) examined 46 self-selected homosexual participants: 20 monozygotic twins, 23 dizygotic twins, 2 twins of unknown origin, and 1 trizygotic triplet. The sample included male (n=38) and female (n=8) respondents, as well as same-sex co-twins (n=33) opposite-sex co-twins (n=12), and mixed-sex triplets (n=1). Only nine total participants (20%) claimed that their co-twin also identified as homosexual. This discordance verified that genetic influence alone cannot explain the development of sexual orientation (p. 409). Further, seven of the same-sex twin participants (21.2%) reported engaging in sibling incest with their twin. Since the co-twin was not necessarily homosexual, this finding offered little support to the conditioning theories (the hypothesis that

same-sex sibling incest increases the likelihood of a same-sex adult sexual orientation). However, the sibling incest hypothesis has received additional support from larger, more recent studies (Beard et al., 2013; Stroebel, O'Keefe, Griffee et al., 2013).

Then, in their well-known article, Hamer, Hu, Magnuson, Hu and Pattatucci (1993) claimed to have found evidence supporting a genetic influence. Through an analysis of the families of 114 gay men, there appeared to be an increase in same-sex maternal relatives as opposed to same-sex paternal relatives. Specifically, the data showed a significant correlation between male homosexual orientation and "the inheritance of genetic markers on chromosomal region Xq28" (p. 321). This influential study has been accepted as confirmation of a *gay gene* by the U.S. general public (Miller, 1995).

Until recently, the results of this study had not been replicated (Rice, Anderson, Risch, & Ebers, 1999). Sanders et al. (2014) analyzed 908 homosexual brothers within 384 families. The data again showed significant corrections between male homosexual orientation and two genetic linkages: the pericentromeric region on chromosome 8 and Xq28. However, the authors stated that the effects are "small" and "far from determinant" (Sanders et al., 2014, p. 8). They reasoned that the genetic linkages represent only one part of a multifactorial causation, one which includes "genetic and environmental" origins (p. 8). Furthermore, a parallel study with lesbian women has not yet been conducted. Still, the prospect of a *gay gene* continues to permeate our society.

Political and religious influences. To explain the resiliency of the *gay gene* hypothesis, one must look to our cultural philosophies. Although the U.S. government enforces the separation of church and state, the influence of political and religious beliefs on sex is undeniable. Some beliefs remain sexually restrictive, asserting that sexual intercourse facilitates procreation and that sexual passion should be avoided (Francoeur, 2001). Other beliefs are sexually permissive,

encouraging pleasure and intimacy and deemphasizing reproduction as the sole purpose for sexual relations. Student (1998) found that annual reported sexual occurrences were higher in self-defined political liberals (M = 64.67) than among moderates (M = 60) or conservatives (M = 56.67). In addition, the frequency of sexual activity negatively correlates with church attendance (Student 1998; Smith, 2006).

The concept of a *gay gene* may persist largely for political and/or religious reasons. It is no secret that, despite recent changes, the United States remains divided on gay rights issues (e.g. same-sex marriage, adoption by same-sex couples, anti-discrimination laws). Currently, 37 states have legalized same-sex marriage. The remaining eleven states (i.e. Arkansas, Georgia, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, and Texas) have amended their constitutions to ban it. The legal rulings for joint same-sex adoption and anti-discrimination are similarly divided.

Lewis (2009) suggested that the attribution theory plays a crucial role in this discord. Individuals have two motives when making attributions: knowledge and control. They have a need to form a coherent understanding of the world and to control their environment. Unfortunately, humans are susceptible to the fundamental attribution error: they are more likely to attribute others behavior to *situations* (e.g. pressure from others, money, the nature of the social situation), while attributing their behavior to *dispositions* (e.g. moods, attitudes, personality, traits, abilities). Utilizing this theory, Lewis (2009) found that individuals who attribute homosexuality to disposition are more likely to support gay rights and to have "positive views about lesbians, gay men, and bisexuals" (p. 1). In contrast, individuals who attribute homosexuality to situation are less likely to support gay rights. They may even consider it to be an "anti-social decision" (p. 1).

It should be noted, however, that an individual need not be born with a *gay gene* for homosexuality to be involuntary. The explanation explored here – critical period learning – also suggests that homosexuality is not a choice (Beard et al., 2013; O'Keefe, et al., 2014). An individual no more chooses their sexuality than they choose their native language. Critical period learning merely implies that sexual orientation is not heritable. In that sense, it should be a critical piece of research for gay rights advocates.

Prenatal hormones. Some researchers have suggested that prenatal hormonal abnormalities may be to blame for homosexuality. Hypothetically, exposure to certain hormones during a prenatal critical period could alter brain structure and, consequentially, sexual orientation (Peplau, Spalding, Conley, & Veniegas, 1999). To test this theory, scientists relied upon naturally occurring quasi-experiments (e.g., genetic disorders, medications taken during pregnancy). One study found that women with congenital adrenal hyperplasia were slightly more likely to report bisexual fantasies than their control counterparts (Zucker et al., 1996). Another study found that women prenatally exposed to DES (diethylstilbestrol) were also more likely to report bisexual fantasies than the control participants (Meyer-Bahlburg et al., 1995). However, the studies offer "virtually no support for the prenatal hormone theory about women's sexual orientation" (Peplau al., 1999, p. 78). By a similar token, Bailey (1995) examined the brains of heterosexual males and homosexual males for structural differences. Although variations were reported, "the replicability of these findings have been questioned, and their interpretation remains controversial" (Peplau et al., 1999, p. 78).

Environmental Basis

Again, others have offered a different explanation: humans learn their adult sexual orientation. While researchers such as Byne and Parsons do not necessarily dispute the possibility

of a biological component, they have criticized twin studies on the basis that many twins share familial and social environments (Byne & Parsons, 1993). Research has demonstrated that the family environment and family interactions influence the cognitive, behavioral, and social abilities of children. Three variables in particular appear to correlate with children's developmental outcomes: "parent-child interactions," "family-orchestrated child experiences," and "health and safety provided by the family" (Guralnick, 2006).

As previously mentioned, Sanders et al. (2014) claimed that genetics may only partially (40%) account for male homosexual orientation. This seems to suggest that environmental factors influence child development; "particularly during sensitive periods early in life" (Patterson & Vakili, 2014, p. 22) Perhaps an individual's genetic make-up increases their sensitivity toward environmental components (Price & Jaffee, 2008).

Siblings. Although sibling influences on crush selection and adult sexual orientation are factors to consider, they were beyond the scope of the present study. Nevertheless, such influences should not be overlooked. Sibling environments have been thought to affect an individual's relationship with his or her parents. Earlier research cited no difference between heterosexuals and homosexuals in regards to sibling constellations (e.g. sibling sex, sibling age) (Bell et al., 1981). However, later studies found that individuals who identify as homosexual are more likely to have older brothers and sisters (McConaghy et al., 2006) and that, as discussed earlier, sexual experimentation with same-sex siblings increases the likelihood of same-sex behaviors in adulthood (Beard et al., 2013; Stroebel, O'Keefe, Griffee et al., 2013).

Hypotheses

The purpose of this exploratory study was to examine the predictive effect, if any, that nuclear family dynamics have on same-sex romantic emotional attachments during childhood

and/or adolescence (i.e., crushes). The study also sought to establish whether those dynamics had any impact on adult sexual orientation. The current study proposed the following hypotheses:

1. Environmental factors occurring in childhood and adolescence will help predict the sex of childhood crushes
2. Environmental factors occurring in childhood and adolescence will help predict adult sexual orientation.
3. There will be a positive relationship between the sex of childhood crushes and adult sexual orientation.

CHAPTER TWO

METHOD

Participants

The researchers collected data from 3,443 participants, including 1,242 males (36.07%) and 2,201 females (63.93%). For the male participants, the median age was 21 years (M = 26.4, SD = 11.8, range: 18-86 years). The education levels of the male participants were as follows: 5.9% high school only, 70.9% some college, 14.3% bachelors' degree, 4.8% master's degree, and 4.1% doctoral degree. For the female participates, the median age was also 21 years (M = 24.7, SD = 9.4, range: 18-78 years). The education levels of the female participants were as follows: 3.0% high school only, 72.6% some college, 17.8% bachelors' degree, 5.2% master's degree, and 1.5% doctoral degree.

All participants were over the age of 18 and gave informed consent using, at each higher education institution, the form approved by the institutional review board. The participants were recruited from a population consisting mainly of undergraduate and graduate college students from six mid-sized, mid-Atlantic college campuses using bulletin board postings and announcements in classes between 2002 and 2012.

The researchers received approval to begin data collection in 2002 on three mid-sized, mid-Atlantic college campuses. In 2004, approval was granted to begin data collection on a comparable fourth campus. In 2007, the researchers received permission to begin data collection on a comparable fifth campus, and in 2009, permission was granted to begin data collection on a comparable sixth campus. The announcement processes were slightly different on each campus, because the researchers relied on individual professors to make announcements to their classes. In some cases, the researchers were invited into classes to make the announcements. To obtain a

wider base and to increase age, education, and life-experience diversity, the researchers also recruited university faculty, university staff, and individuals from the same general population of the mid-Atlantic United States who had already completed their education.

In order to increase the number of sexual minority individuals who participated in the study, the researchers attended area "Pride" parades and Lesbian, Gay, Bisexual, and Transgender (LGBT) picnics. LGBT churches and other LGBT-friendly organizations were also contacted. Members of these groups were invited to participate. Whenever individuals agreed to participate, the researchers encouraged them to bring along friends to participate or to encourage their friends to participate at a later time; this technique is known as snowball recruiting. All participants were unpaid, but many of the students received credit from their professors in psychology, social work, and criminal justice courses. Moreover, all participants were volunteers.

Measures

The anonymous survey was administered using a computer-assisted self-interview (CASI) program (S-SAPE1 ©S-SAPE, LLC, 2002) and many of its items used for the present study have been described and validated in other studies (e.g., Beard et al., in press; Stroebel, O'Keefe, Beard et al., 2013; Stroebel, O'Keefe, Griffee et al., 2013). The actual items that elicited the data used in this research are provided in the appendix. Items from the S-SAPE1 were utilized with permission from S-SAPE, LLC. Permission should be obtained from the rights holder in order to reproduce or utilize any S-SAPE1 items.

Measures of crushes. All respondents were shown the following two statements: "As a child, I always seemed to have a crush on one female or another", and "As a child, I always seemed to have a crush on one male or another." Response options were limited to "agree" or "disagree." This was done to measure affectional bonding.

All respondents were asked to complete the following two sentences as an opportunity to share their experience with early crushes with the investigators. These variables were re-coded to produce a total of eight binary variables: male crush on female before puberty, male crush on male before puberty, male crush on female after puberty, male crush on male after puberty, female crush on male puberty, female crush on female before puberty, female crush on male after puberty, and female crush on female after puberty.

A) "The best way to describe the genders of the individuals outside my family that I had crushes on (or was in love with) before I hit puberty is: (1) only boys or adult men before I hit puberty, (2) only girls or adult women before I hit puberty, (3) mostly boys or adult men but some girls or adult women before I hit puberty, (4) mostly girls or adult women but some boys or adult men before I hit puberty, or (5) I never had crushes on anybody outside my family before I hit puberty."

B) "The best way to describe the genders of the individuals outside my family that I had crushes on (or was in love with) from the time that I hit puberty to age 18 is: (1) only boys or adult men from the time that I hit puberty to age 18, (2) only girls or adult women from the time that I hit puberty to age 18, (3) mostly boys or adult men but some girls or adult women from the time that I hit puberty to age 18, (4) mostly girls or adult women but some boys or adult men from the time that I hit puberty to age 18, or (5) I never had crushes on anybody outside my family from the time that I hit puberty to age 18."

The crush items were added to the CASI program after the first 364 participants had partaken in the study. As a result, data on crushes were only available for a subset of 1,114 male and 1,965 female participants.

Measures of adult sexual orientation. All respondents were asked to complete the following sentence by selecting one of the five options: “The best way to describe how open and honest I am about my sexual preference is: (1) All my friends and family know that I am straight, and that is what I am. (2) All my friends and family know that I am gay, lesbian, bisexual, or trans-gendered, and that is what I am. (3) Some of my friends or family still think that I am straight, but actually I know that I am really gay, lesbian, bisexual, or trans-gendered. (4) My friends and family mostly think that I am straight, but I am really mixed up about whether I am straight or gay, lesbian, bisexual, or trans-gendered. (5) I have no sexual preference, and I have never engaged in any sort of sex with a partner.” This was done to measure sexual orientation.

Content validity. All items for the survey were carefully reviewed and approved by four doctoral level experts in the field: a psychiatrist trained in psychotherapy, a social worker trained in psychotherapy, a psychologist, and a gynecologist who was also trained in psychology.

Procedure

The present study was part of a larger study entitled "Effects of Recalled Family Attitudes and Childhood Sexual Experiences on Adult Sexual Attitudes and Adjustment." approved by the institutional review boards at six mid-sized, mid-Atlantic colleges. All 3,443 participants were over the age of 18 and gave informed consent using printed paper forms approved by the relevant institutional review board. Potential participants were invited to participate in a “cradle to the grave” study on human sexuality. The research was conducted using the S-SAPE1 computerized anonymous survey instrument.

The surveys were administered in university computer laboratories that had up to 45 computers to a room, and sufficient space between participants so that others were not in a position to see their computer screens. Anonymity was protected by electronic randomized filing of the

encrypted results in a hidden random access file filled with fake data, as well as simultaneous filing of many fake decoy lines. Decoding was performed on the file containing all respondent's randomly filed encrypted data.

During a 10-minute orientation, respondents were informed of these protections to their anonymity and that the S-SAPE1 computerized anonymous survey instrument was designed to obtain a history of sexual experiences and behaviors. They were again informed that they could withdraw from the study at any time they wished.

During the orientation provided before the participants started entering their data into the computers, they were informed about the operation of the screen that presented the sexual behavior items and the sexual behavior sub-items. Variables describing behaviors that constituted child sexual abuse (CSA) by adult female and adult male partners were constructed by the computer program to insure that they were worded similarly to those previously presented that described the same behaviors with female or male partners (a) whose age was within 4 years of the participant's and (b) whose age was more than 4 years older than the participant's but under age 18. Similarly worded items describing sexual behaviors with partners more than 4 years younger were presented after all of the above items had been presented.

Selection of participants for the study. From the records of all 3,541 potential participants available in the database, the researchers selected 3,443 who were not transsexual and who had no congenital or other types of genital abnormalities that interfered with sexual function. Of the 98 individuals (2.8%) who were excluded from this study, 44 were excluded because they were transsexual, which would have created ambiguity in assignment to groups by sex. The remaining 54 were excluded because they endorsed the statement "I have a genital anomaly (malformation) or other medical problem with my genital area, such as an injury or a sexually

transmitted disease, which interferes with my enjoyment of sex," which would have confounded behavioral interpretation of variables related to sexual behavior.

CHAPTER THREE

RESULTS

Male Participants

Of the 1,242 male participants, 638 reported "sex of any kind" with a female partner prior to the age of 18: 126 (10.1%) with an adult female and 602 (48.5%) with a female under the age of 18. In contrast, 169 reported "sex of any kind" with a male partner prior to the age of 18: 31 (2.5%) with an adult male and 164 (13.2%) with a male under the age of 18. Ninety-five participants engaged in "sex of any kind" with both male and female partners prior to the age of 18. On average, "sex of any kind" with male partners had preceded "sex of any kind" with female partners by 1.2 ± 4.5 years ($p = .009$, by paired t-test).

Female Participants

Of the 2,201 female participants, 1,225 reported "sex of any kind" with a male partner prior to the age of 18: 105 (4.8%) with an adult male and 1,120 (50.9%) with a male under the age of 18. In contrast, 459 reported "sex of any kind" with a female partner prior to the age of 18: 6 (0.3%) with an adult female and 453 (20.6%) with a female under the age of 18. A total of 341 participants engaged in "sex of any kind" with both male and female partners prior to the age of 18. On average, "sex of any kind" with female partners had preceded "sex of any kind" with male partners 1.5 ± 4.6 years ($p < .001$, by paired t-test).

Hypothesis 1: Environmental Factors Occurring in Childhood and Adolescence Will Help Predict the Sex of Childhood Crushes

In order to identify possible predictors for having crushes on either male or female partners before the participants reached 18 years of age, a number of forced-choice items describing the nuclear family was examined: maternal affection to the respondent, paternal affection to the

respondent, parental demonstration of affection for one another, nudity practices within the home, parental composition of the nuclear family (e.g. adoption, divorce, death, remarriage), quality of parental relationship, management of parental disagreement, maternal attitude towards sex, and paternal attitude towards sex. First, the possible predictors for statistical significance at step-0 of the logistic regression were screened, with only those predictors that were statistically significant being eligible for inclusion in the multiple logistic regression model. Then, a stepwise approach to building the logistic regression models was utilized, adding at each step the nuclear family variable that was the most powerful remaining predictor after adjusting for the variables already added to the model.

Opposite-sex crushes in males. Prior to puberty, a male participant had an increased likelihood of experiencing an opposite-sex crush if his mother thought sex was healthy and provided healthy information, if his parents solved disagreements in private, or if he was raised by a single mother. However, a prepubescent male participant had a reduced likelihood of experiencing an opposite-sex crush if he had so little contact with his mother that he had no idea what his mother's attitude was toward sex (see Table 1).

After puberty, a male participant had an increased likelihood of experiencing an opposite-sex crush if his parents solved disagreements in private or if his parents divorced and introduced a new partner into the home before he reached age 18. However, an adolescent male participant had a reduced likelihood of experiencing an opposite-sex crush if his mother thought sex was dirty and filthy, but never discussed it with him (see Table 2).

Opposite-sex crushes in females. Prior to puberty, a female participant had an increased likelihood of experiencing an opposite-sex crush if her parents divorced and refrained from introducing a new partner into the home before she reached age 18, or if her mother demonstrated

affection toward her. However, a prepubescent female participant had a reduced likelihood of experiencing an opposite-sex crush if she had so little contact with her mother that she had no idea what her mother's attitude was toward sex (see Table 3).

After puberty, a female participant had an increased likelihood of experiencing an opposite-sex crush if her parents solved disagreements in private. However, an adolescent female participant had a reduced likelihood of experiencing an opposite-sex crush if she had so little contact with her mother that she had no idea what her mother's attitude was toward sex or if one of her parents died and a new partner was not introduced into the home before she reached age 18 (see Table 4).

Same-sex crushes in males. Prior to puberty, a male participant had an increased likelihood of experiencing a same-sex crush if (1) his mother took his side during spousal disagreements, if (2) his mother thought sex was dirty and filthy, but never discussed it with him, if (3) his mother thought sex was healthy but never discussed it with him, or if (4) his father took his side during spousal disagreements (see Table 5).

After puberty, a male participant had an increased likelihood of experiencing a same-sex crush if (1) his mother took his side during spousal disagreements, if (2) his mother thought sex was dirty and filthy, but never discussed it with him, or if (3) his mother thought sex was healthy but never discussed it with him. However, an adolescent male participant had a reduced likelihood of experiencing a same-sex crush if his mother thought sex was healthy and provided healthy information (see Table 6).

Of the 1,114 male participants who provided data on crushes, 70 (6.3%) acknowledged having had crushes mostly or exclusively on males before puberty, and 72 (6.5%) acknowledged having had crushes mostly or exclusively on males after puberty. Nine participants (0.8%) reported

having same-sex crushes solely before puberty, eleven participants (1.0%) reported having same-sex crushes solely after puberty, and sixty-one participants (5.5%) endorsed both selections.

Same-sex crushes in females. Prior to puberty, a female participant had an increased likelihood of experiencing a same-sex crush if (1) she witnessed parental intercourse by sight or sound or if (2) she was raised by her grandparents. However, a prepubescent female participant had a reduced likelihood of experiencing a same-sex crush if her mother demonstrated affection towards her (see Table 7).

After puberty, a female participant had an increased likelihood of experiencing a same-sex crush if (1) she witnessed parental intercourse by sight or sound, if (2) she had so little contact with her mother that she had no idea what her mother's attitude was toward sex, or if (3) her mother took her side during spousal disagreements. In addition, a nearly significant predictor for a female participant to experience a same-sex crush was that the participant's mother thought sex was healthy, but never discussed it with her ($p = .052$) (see Table 8).

Of the 1,965 female participants who provided data on crushes, 48 (2.4%) acknowledged having had crushes mostly or exclusively on females before puberty, and 59 (3.0%) acknowledged having had crushes mostly or exclusively on females after puberty. Seven participants (0.4%) reported having same-sex crushes solely before puberty, eighteen participants (0.9%) reported having same-sex crushes solely after puberty, and forty-one participants (2.1%) endorsed both selections.

Hypothesis 2: Environmental Factors Occurring in Childhood and Adolescence Will Help Predict Adult Sexual Orientation

In order to identify possible predictors for adult sexual orientation, the same forced-choice items describing the nuclear family was examined: maternal affection to the respondent, paternal

affection to the respondent, parental demonstration of affection for one another, nudity practices within the home, parental composition of the nuclear family (e.g. adoption, divorce, death, remarriage), quality of parental relationship, management of parental disagreement, maternal attitude towards sex, and paternal attitude towards sex. First, the possible predictors for statistical significance at step-0 of the logistic regression were screened, with only those predictors that were statistically significant being eligible for inclusion in the multiple logistic regression model. Then, a stepwise approach to building the logistic regression models was utilized, adding at each step the nuclear family variable that was the most powerful remaining predictor.

The self-identified adult sexual orientation item was added to the CASI program after the first 238 male participants and 430 female participants had partaken in the study. As a result, data on self-identified adult sexual orientation was only available for 1,041 male participants and 1,771 female participants. Of the male participants, 901 (89.7%) reported a straight orientation, while 103 (10.3%) reported a gay or bisexual orientation. Of the female participants, 1586 (89.6%) reported a straight orientation, while 185 (10.4%) reported a gay or bisexual orientation.

Self-identified straight males. A male participant had an increased likelihood of reporting a straight adult sexual orientation if (1) his parents solved disagreements in private, if (2) his father thought sex was healthy and provided healthy information, or if (3) his parents divorced and introduced a new partner into the home before he reached age 18. However, a male participant had a reduced likelihood of reporting a straight adult sexual orientation if it had been common for him to see his father nude (see Table 9).

Self-identified straight females. A female participant had an increased likelihood of reporting a straight adult sexual orientation if her parents solved disagreements in private. However, a female participant had a reduced likelihood of reporting a straight adult sexual

orientation if (1) it had been common for her to see her father nude, if (2) she had so little contact with her mother that she had no idea what her mother's attitude was toward sex, if (3) she witnessed parental genital petting, or if (4) she witnessed parental intercourse by sight or sound (see Table 10).

Self-identified gay and bisexual males. A male participant had an increased likelihood of reporting a gay or bisexual adult sexual orientation if (1) his mother took his side during spousal disagreements, if (2) it had been common for him to see his father nude, or if (3) his father took his side during spousal disagreements. However, a male participant had a reduced likelihood of reporting a gay or bisexual adult sexual orientation if his father thought sex was healthy and provided healthy information (see Table 11).

Self-identified gay and bisexual females. A female participant had an increased likelihood of reporting a gay or bisexual adult sexual orientation if (1) it had been common for her to see her father nude, if (2) she had so little contact with her mother that she had no idea what her mother's attitude was toward sex, if (3) she witnessed parental intercourse by sight or sound, or if (4) she witnessed parental genital petting. However, a female participant had a reduced likelihood of reporting a gay or bisexual adult sexual orientation if her parents solved disagreements in private (see Table 12).

Hypothesis 3: There Will Be a Positive Relationship between the Sex of Childhood Crushes and Adult Sexual Orientation

In order to measure the relative predictive power of the crush variables on adult sexual orientation, a stepwise approach to building the logistic regression models was utilized, adding at each step the crush variable that was the most powerful remaining predictor.

Adult sexual orientation in males. A male participant had an increased likelihood of reporting a straight adult sexual orientation if he had frequent crushes on females as a child or if he experienced crushes on girls or adult women before puberty. However, a male participant had a reduced likelihood of reporting a straight adult sexual orientation if he experienced crushes on boys or adult men after puberty or if he had frequent crushes on males as a child (see Table 13).

Similarly, a male participant had an increased likelihood of reporting a gay or bisexual adult sexual orientation if he experienced crushes on boys or adult men after puberty or if he had frequent crushes on males as a child. However, a male participant had a reduced likelihood of reporting a gay or bisexual adult sexual orientation if he had frequent crushes on females as a child (see Table 14).

Adult sexual orientation in females. A female participant had an increased likelihood of reporting a straight adult sexual orientation if she experienced crushes on boys or adult men after puberty. However, a female participant had a reduced likelihood of reporting a straight adult sexual orientation if (1) she experienced crushes on girls or adult women after puberty or if (2) she had frequent crushes on females as a child (see Table 15).

Similarly, a female participant had an increased likelihood of reporting a gay or bisexual adult sexual orientation if (1) she experienced crushes on girls or adult women after puberty or if (2) she had frequent crushes on females as a child (see Table 16).

CHAPTER FOUR

DISCUSSION

The findings of this study offer support to the conditioning hypothesis: (1) that nuclear family dynamics factors help predict the sex of childhood crushes, as well as adult sexual orientation, and (2) that crush variables help predict adult sexual orientation. Some of early results of this study were submitted for publication before this thesis was defended (Beard et al., submitted for publication), because they were critical to bigger picture of the larger project.

Nuclear Family Predictors for the Sex of Childhood Crushes in Males

For the male participants, parental attitudes about sex were a significant predictor that influenced whether early crushes would predominately be on females or on males. Participants who experienced opposite-sex crushes were more likely to report that their mother expressed a favorable view of sex. In contrast, participants who experienced same-sex crushes were more likely to report that their mother expressed distaste for sex. These parental attitudes could have positively or negatively conditioned the participant's view on opposite-sex relations.

Parental sex education. It appears, however, that parental attitudes (whether positive or negative) were not as important as discussions about sex. Male participants who experienced same-sex crushes were more likely to report an absence of parental sex education. Without communication, children, from any family composition, may lack the navigational skills necessary to become sexually mature. Indeed, some parents fear that, without sex-positive parenting, their children may grow up ashamed/confused by their bodies or at an increased risk for negative consequences (e.g. sexually transmitted infections, pregnancy, guilt, anxiety) (Grover, 2014). With sex-positive parenting, on the other hand, children are more likely to delay intercourse, use condoms, exhibit greater sexual autonomy, and expect to be in a relationship during first intercourse (Parkes, Henderson, Wight, Nixon, 2011).

"Sex-positive parenting" (Grover, 2014) does not extend to approval of sexual permissiveness or youth partnered sex. In fact, high parental approval of sexual engagement correlates with a higher number of sexual partners (Coley, Lombardi, Lynch, Mahalik, & Sims, 2013). However, that does not mean parents should bombard their children with warnings, as this intervention also predicts higher "partner accumulation" (p. 95). Research demonstrates that children who receive comprehensive sex education have "a lower risk of pregnancy" than children who receive no or abstinence-only sex education (Kohler, Manhart, Lafferty, 2008, p. 349). Therefore, sex-positive parenting should be comprehensive. It should strive to be honest, factual, and age-appropriate.

Observation of parental disagreements. Male participants who experienced same-sex crushes were more likely to report that they had witnessed parental disagreements where one parent took their side against the other parent. In contrast, males who experienced opposite-sex crushes were more likely to report that their parents solved disagreements privately and then approached their child together.

Youth need significant adults to model constructive conflict resolution. In the words of Albert Schweitzer, "Modeling may not only be the best way to teach, it may be the only way to teach" (as cited in Cranfield, Hansen, Slawski, Firman, 2008). Conflict is an inevitable part of life. However, the way parents interact with one another and adapt to conflict as a couple sets "the foundation for security-enhancing or security-eroding family dynamics" (Laurent, Kim, & Capaldi, 2008, p. 385).

Children with parents who engage in destructive conflict (e.g. undermining each other's parenting style) are less likely to develop parental attachments and to experience emotional security; they are also more likely to internalize problems and to perpetuate similar behaviors later

in life (Barthassat, 2014; Reynolds, Houlston, Coleman, & Harold, 2014). This is also true for children whose parents communicate indirectly via a third family member, such as a child. This is defined as triangulation (Buehler, Franck, & Cook, 2009). In direct opposition, children with parents who consistently display affection, who support one another, and who resolve disagreements constructively as a couple are less likely to be troubled by conflict and more likely to experience emotional security and to learn behaviors that are helpful in building and maintaining relationships (Barthassat, 2014; Reynolds, Houlston, Coleman, & Harold, 2014).

Nuclear Family Predictors for the Sex of Childhood Crushes in Females

For the female participants, the absence of one or both parents was a significant predictor that influenced whether early crushes would predominately be on males or on females. Participants who experienced opposite-sex crushes were more likely to report that their parents demonstrated a relationship devoid of fighting and criticism, while full of quiet love and respect. In contrast, participants who experienced same-sex crushes were more likely to report having little contact with their mother, experiencing the death of a parent, or being raised by their grandparents. The extent of parental involvement could have positively or negatively conditioned the participant's view on opposite-sex relations.

Parental involvement. As with the males, female participants who experienced same-sex crushes were more likely to report an absence of maternal sex education. It appears, however, that overt parental sex education was not as important as parental presence. Females who lack a significant adult female may develop a same-sex crush to compensate for the absence of a mother-figure. Without observing affection between two consenting adults, children from any family composition may lack the navigational skills necessary to become sexually mature.

Again, it all comes down to modeling. Youth need significant adults to model loving, affectionate interactions. Children raised in one-parent homes are more likely to report risk behaviors (i.e. having intercourse and having intercourse at earlier ages) than children raised in two-parent homes (Oman, Vesely, & Aspy, 2005; Mendle et al, 2009). It is worth noting that same-sex parental sexual orientation does not adversely impact the development of children (Farr & Patterson, 2013). Children whose parents share a harmonious and supportive relationship – regardless of the sexual orientation of their parents – exhibit more "positive child behavior" than children whose parents share an undermining and competitive relationship (Farr & Patterson, 2013, p. 1236).

Observation of intercourse. Female participants who experienced same-sex crushes were more likely to report that they had witnessed parental intercourse by sight or sound. This primal scene could have coincided with anxiety. In their classic "Little Albert" experiment, Watson and Rayner (1920) combined a neutral white rat with the aversive sound of a hammer striking a steel bar. When frightened by something, an individual reacts by attempting to avoid it (Watson and Rayner, 1920). A neutral stimulus, such as coitus, can transform into a conditioned stimulus if paired with the unconditioned response of fear. For example, a child who witnesses sexual intercourse may misinterpret the act (e.g. as the father hurting the mother) and veer from opposite-sex relationships; this is referred to as fear conditioning.

An alternative explanation argues against a causal relationship between witnessing sexual intercourse and the experience of same-sex crushes. Again, a more likely explanation is that a third, confounding variable (e.g. family openness) influences both variables. Families that hold more open-minded beliefs about sex have a higher likelihood of being sexually active, providing factual information, and supporting a child who experiences a same-sex crush. The current study

provides some support for this explanation. Participants who reported that their mother thought sex was healthy were more likely to report that their mother demonstrated affection toward them. Participants who reported that their father thought sex was healthy were more likely to report that (1) their father demonstrated affection toward them, that (2) they felt close to both parents, and that (3) their mother also thought sex was healthy and provided healthy information. Furthermore, participants who reported witnessing sexual intercourse were also more likely to report that their mother thought sex was healthy and provided healthy information ($p = 0.19$).

Nuclear Family Predictors for Adult Sexual Orientation

For the male participants, parental sex education and the observation of parental disagreements were significant predictors that influenced whether or not a male would self-identify as straight or gay/bisexual as an adult. Participants who self-identified as a straight adult were more likely to report that their father expressed a favorable view of sex. They were also more likely to report that their parents solved disagreements privately and then approached their child together. In contrast, participants who self-identified as a gay/bisexual adult were more likely to report that they had witnessed parental disagreements where one parent (e.g. mother) took their side against the other parent (e.g. father). These parental practices could have positively or negatively conditioned the participant's view on opposite-sex relations.

For the female participants, parental involvement and observation of parental intercourse/genital petting were significant predictors that influenced whether or not a female would self-identify as straight or gay/bisexual as an adult. Participants who self-identified as a gay/bisexual adult were more likely to report having little contact with their mother. They were also more likely to report that they had witnessed parental intercourse or parental genital petting.

These parental practices could have positively or negatively conditioned the participant's view on opposite-sex relations.

Parental nudity. Male and female participants who self-identified as gay/bisexual as an adult were more likely to report that it had been common to see their father nude. This paternal nudity could have coincided with the participant's emerging awareness of sexual excitement. When aroused, individuals often rely on environmental cues to explain their arousal (Clark & Pataki, 1995). Hoffman explained that a neutral stimulus, such as the male body, can transform into a conditioned stimulus if paired with the unconditioned response of sexual arousal (as cited in Janssen, 2007). This is referred to as sexual conditioning (Akins, 2004; Robinett 2012).

An alternative explanation argues against a causal relationship between paternal nudity and the experience of same-sex crushes. Rather, a more likely explanation is that a third, confounding variable (e.g. family openness) influences both variables. Families that hold more open-minded beliefs about sex are more likely to practice optional non-sexualized nudity and to support a child experiencing a same-sex crush. In their 1988 study, Lewis and Janda found a positive correlation between childhood exposure to social nudity and adjustment in adults. They also cited that a positive attitude toward sexuality improved a child's comfort with sexuality.

Okami, Olmstead, Abramson, and Pendleton (1998) conducted a longitudinal study which corroborates this finding regarding exposure to parental nudity. They evaluated 204 male and female participants. The researchers found "no harmful main effects of these experiences" at age 17 or 18 (p. 376). Consistent with earlier literature, the researchers also found that parental nudity correlated with "positive, rather than negative, sexual experiences in adolescence," as well as an overall reduction in sexual experiences (p. 376).

Crush Predictors for Adult Sexual Orientation

Crushes were a significant predictor of adult sexual orientation. Male participants who experienced crushes on girls or adult women *before* puberty or who reported having frequent crushes on females were more likely to self-identify as a straight adult. In contrast, male participants who experienced crushes on boys or adult men *after* puberty or who reported having frequent crushes on males were more likely to self-identify as a gay/bisexual adult.

Female participants who experienced crushes on boys or adult men *after* puberty were more likely to self-identify as a straight adult. It is worth noting that experiencing crushes on boys or adult men *before* puberty was nearly a significant predictor for a female to self-identify as a straight adult ($p = .051$). In contrast, female participants who experienced crushes on girls or adult women *after* puberty or who reported having frequent crushes on females were more likely to self-identify as a gay/bisexual adult.

Overall, the strongest predictor of adult sexual orientation was how frequently a participant reported having crushes. Male participants who reported frequent opposite-sex crushes were more likely to self-identify as a straight adult, whereas male participants who reported frequent same-sex crushes were more likely to self-identify as a gay/bisexual adult. Similarly, female participants who reported frequent same-sex crushes were more likely to identify as a gay/bisexual adult. This supports the idea that learning to be a sexually functional adult is subject to conditioning.

In addition, participants reported experiencing opposite-sex crushes before *and* after puberty, while participants reported experiencing same-sex crushes solely after puberty. This supports the idea that learning to be a sexually functional adult is subject to a critical period. If, prior to puberty, a child experienced an opposite-sex crush, then that child was more likely to self-identify as a straight adult. However if a child failed to experience an opposite-sex crush prior to puberty, then that child was more likely to self-identify as a gay/bisexual adult. This could be the

result of conditioning. Children who experienced same-sex crushes after puberty may have conditioned themselves to this behavior during their childhood. It is also worth noting that males appear to have a more restrictive critical period than females.

Study Limitations

This was an epidemiological, retrospective study based on a convenience sample. Since participants were *not* identified as children, it can be said that the study was correlative. Although a randomized prospective study is preferred, it is not feasible. The study's correlative nature denotes that the correlations between childhood events and adulthood events *could* have been caused by testimony flaws (e.g. selective memory, false memories, misinterpreted phrasing, perceived social pressure). However, based on the extensive research on retrospective data that showed fairly good reliability (Hardt & Rutter, 2004), it is believed that those testimony flaws are unlikely to occur.

The study did not involve a random sample of the general population and, thus, cannot estimate the incidence of behaviors in the general population. However, the *incidence* of adult sexual orientations is far less valuable than the *origins* of those adult sexual orientations. The incidence of adult sexual orientations should change according to the incidence of childhood crushes and sexual behaviors. Furthermore, since participants were volunteers, it can be said that the study holds the potential for bias due to self-selection. Many participants were from state-supported schools and fairly well-educated. Therefore, questions may arise as to whether this study's conclusions would apply to extremely wealthy or less educated individuals.

Despite these limitations, convenience samples are beneficial in answering sex-based research questions, such as those addressed in the current study (Brecher & Brecher, 1986). The

findings provide important information about the impact of nuclear family dynamics and the sex of childhood/adolescent crushes on the adult sexual orientations of men and women.

Implications for Future Research

This is one of the first studies, to date, to examine the influence of nuclear family dynamics on the sex of childhood crushes. It is also one of the first studies to explore the relationship between the sex of childhood crushes and adult sexual orientation. Thus, replication is warranted. Study limitations can be minimized through the collection of a national sample, one that includes an increased percentage of sexual minorities and more diversity among participants (e.g. age, culture, education, ethnicity, geography, race, religion, socioeconomic status).

Future research could seek to determine whether or not participant perception regarding attitudes and affection could be more important than factual occurrences in predicting crush selection and adult sexual orientation. Future research could also explore the influence of parent-child communication on childhood/adolescent crushes and adult sexual orientation. Specifically, modifications should be made to explore whether the quality of sex conversations, the quantity of sex conversations, or the modeling of parental attitudes toward sex help predict childhood/adolescent crushes and adult sexual orientation.

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Table 1

Logistic Regression Analysis of Nuclear Family Predictors for Opposite-Sex Crushes in Prepubescent Males

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"Mother thought sex was healthy, and she provided me with healthy information."	.629	.230	.006	1.875
2	"If my parents had disagreements about how to deal with me as a child, they seemed to work them out where I could not hear, and I saw a united approach to me."	.557	.205	.006	1.746
3	"I was mostly raised in a single parent family by my mother."	.996	.355	.005	2.707
4	"I had so little contact with my mother that I have no idea what attitude she had."	-.647	.249	.009	.523
	Constant	1.586	.168	<.001	4.884

Notes: N = 1,114; Nagelkerke R^2 = .048
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Table 2

Logistic Regression Analysis of Nuclear Family Predictors for Opposite-Sex Crushes in Adolescent Males

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"If my parents had disagreements about how to deal with me as a child, they seemed to work them out where I could not hear, and I saw a united approach to me."	.669	.209	.001	1.952
2	"My parents divorced or separated, and there was a remarriage or a new partner in my home before I reached 18."	.726	.326	.026	2.067
3	"Mother thought sex was dirty and filthy, but she never was able to discuss it with me."	-.585	.277	.035	.557
	Constant	1.855	.161	<.001	6.389

Notes: N = 1,114; Nagelkerke R^2 = .035
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Table 3

Logistic Regression Analysis of Nuclear Family Predictors for Opposite-Sex Crushes in Prepubescent Females

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"I had so little contact with my mother that I have no idea what attitude she had."	-1.010	.271	<.001	.364
2	"My parents divorced or separated, and there was no remarriage or new partner in my home before I reached 18."	.720	.324	.026	2.055
3	My mother demonstrated affection for me by kissing or hugging me.	.304	.140	.030	1.355
	Constant	1.549	.383	<.001	4.707

Notes: N = 1,965; Nagelkerke R^2 = .028
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Table 4

Logistic Regression Analysis of Nuclear Family Predictors for Opposite-Sex Crushes in Adolescent Females

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"I had so little contact with my mother that I have no idea what attitude she had."	-1.221	.299	<.001	.295
2	"One of my parents died, but there was no remarriage or new partner in my home before I reached 18."	-1.135	.415	.006	.321
3	"My parents' relationship was reserved: I did not see fighting, criticism, or physical display of affection, but I believe that there was quiet love and respect underneath."	.972	.467	.037	2.644
	Constant	2.908	.110	<.001	18.314

Notes: N = 1,965; Nagelkerke R^2 = .039
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Table 5

Logistic Regression Analysis of Nuclear Family Predictors for Same-Sex Crushes in Prepubescent Males

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"There was often an obvious disagreement between my parents with my mother taking my part against my father."	1.058	.276	<.001	2.881
2	"Mother thought sex was dirty and filthy, but she never was able to discuss it with me."	1.100	.351	.002	3.003
3	"Mother thought sex was healthy, but she never was able to discuss it with me."	.602	.282	.033	1.825
4	"There was often an obvious disagreement between my parents with my father taking my part against my mother."	.776	.395	.050	2.172
	Constant	-3.474	.239	<.001	.031

Notes: N = 1,114; Nagelkerke R^2 = .064
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Table 6

Logistic Regression Analysis of Nuclear Family Predictors for Same-Sex Crushes in Adolescent Males

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"There was often an obvious disagreement between my parents with my mother taking my part against my father."	.871	.265	.001	2.390
2	"Father thought sex was healthy, and he provided me with healthy information."	-.754	.332	.023	.471
3	"Mother thought sex was dirty and filthy, but she never was able to discuss it with me."	1.100	.365	.003	3.004
4	"Mother thought sex was healthy, but she never was able to discuss it with me."	.773	.288	.007	2.166
	Constant	-3.210	.260	<.001	.040

Notes: N = 1,114; Nagelkerke R^2 = .079
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Table 7

Logistic Regression Analysis of Nuclear Family Predictors for Same-Sex Crushes in Prepubescent Females

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	My mother demonstrated affection for me by kissing or hugging me.	-.566	.231	.014	.568
2	"My parents often hugged or kissed in my presence and I witnessed intercourse by sight or sound."	1.162	.491	.018	3.196
3	"I was raised by my grandparent or grandparents."	1.614	.77	.038	5.024
	Constant	-2.308	.606	<.001	.099

Notes: N = 1,965; Nagelkerke R^2 = .032
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Table 8

Logistic Regression Analysis of Nuclear Family Predictors for Same-Sex Crushes in Adolescent Females

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"My parents often hugged or kissed in my presence and I witnessed intercourse by sight or sound."	1.109	.453	.014	3.031
2	"I had so little contact with my mother that I have no idea what attitude she had."	1.202	.440	.006	3.325
3	"There was often an obvious disagreement between my parents with my mother taking my part against my father."	.644	.296	.030	1.904
4	"Mother thought sex was healthy, but she never was able to discuss it with me."	.551	.284	.052	1.735
	Constant	-3.989	.215	<.001	.019

Notes: N = 1,965; Nagelkerke R^2 = .037
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Table 9

Logistic Regression Analysis of Nuclear Family Predictors for Adult Sexual Orientation in Straight Males

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"If my parents had disagreements about how to deal with me as a child, they seemed to work them out where I could not hear, and I saw a united approach to me."	.794	.208	<.001	2.211
2	"Father thought sex was healthy, and he provided me with healthy information."	.682	.245	.005	1.977
3	It was common for me to see my father nude while he was dressing or in the bathroom.	-.190	.083	.023	.827
4	"My parents divorced or separated, and there was a remarriage or a new partner in my home before I reached 18."	.684	.299	.022	1.982
	Constant	1.430	.159	<.001	4.180

Notes: N = 884; Nagelkerke R^2 = .067
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Table 10

Logistic Regression Analysis of Nuclear Family Predictors for Adult Sexual Orientation in Straight Females

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"If my parents had disagreements about how to deal with me as a child, they seemed to work them out where I could not hear, and I saw a united approach to me."	.659	.156	<.001	1.933
2	It was common for me to see my father nude while he was dressing or in the bathroom.	-.357	.104	.001	.700
3	"I had so little contact with my mother that I have no idea what attitude she had."	-.858	.265	.001	.424
4	"My parents often hugged or kissed and did some genital petting in my presence."	-1.324	.511	.010	.266
5	"My parents often hugged or kissed in my presence and I witnessed intercourse by sight or sound."	-.819	.312	.009	.441
	Constant	1.948	.107	<.001	7.018

Notes: N = 1,565; Nagelkerke R^2 = .060
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Table 11

Logistic Regression Analysis of Nuclear Family Predictors for Adult Sexual Orientation in Gay/Bisexual Males

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"Father thought sex was healthy, and he provided me with healthy information."	-.987	.277	<.001	.373
2	"There was often an obvious disagreement between my parents with my mother taking my part against my father."	.791	.240	.001	2.206
3	It was common for me to see my father nude while he was dressing or in the bathroom.	.201	.087	.021	1.223
4	"There was often an obvious disagreement between my parents with my father taking my part against my mother."	.672	.336	.045	1.957
	Constant	-2.316	.163	<.001	.099

Notes: N = 103; Nagelkerke R^2 = .072
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Table 12

Logistic Regression Analysis of Nuclear Family Predictors for Adult Sexual Orientation in Gay/Bisexual Females

#	Nuclear Family Dynamics	*B*	*S.E.*	*p*	Odds-ratio
1	"If my parents had disagreements about how to deal with me as a child, they seemed to work them out where I could not hear, and I saw a united approach to me."	-.739	.166	<.001	.478
2	It was common for me to see my father nude while he was dressing or in the bathroom.	.361	.108	.001	1.434
3	"I had so little contact with my mother that I have no idea what attitude she had."	.854	.276	.002	2.348
4	"My parents often hugged or kissed in my presence and I witnessed intercourse by sight or sound."	.952	.314	.002	2.590
5	"My parents often hugged or kissed and did some genital petting in my presence."	1.454	.512	.005	4.281
	Constant	-2.057	.111	<.001	.128

Notes: N = 185; Nagelkerke R^2 = .064
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Table 13

Logistic Regression Analysis of Crush Predictors for Sexual Orientation in Straight Males

#	Crush Variables	*B*	*S.E.*	*p*	Odds-ratio
1	I had crushes on boys or adult men from the time I hit puberty to age 18.	-3.932	.598	<.001	.020
2	"As a child I always seemed to have a crush on one male or another."	-2.811	.576	<.001	.060
3	"As a child I always seemed to have a crush on one female or another"	1.199	.290	<.001	3.316
4	I had crushes on girls or adult women before I hit puberty.	.872	.387	.024	2.391
	Constant	1.374	.367	<.001	3.950

Notes: N = 884; Nagelkerke R^2 = .545

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Table14

Logistic Regression Analysis of Crush Predictors for Sexual Orientation in Straight Females

#	Crush Variables	*B*	*S.E.*	*p*	Odds-ratio
1	I had crushes on boys or adult men after I hit puberty to age 18.	4.079	.663	<.001	59.078
2	"As a child I always seemed to have a crush on one male or another"	2.840	.615	<.001	17.116
3	"As a child I always seemed to have a crush on one female or another"	-1.082	.339	.001	.339
4	I had crushes on boys or adult men before I hit puberty.	1.416	.726	.051	4.121
	Constant	-2.654	.248	<.001	.070

Notes: N = 1565; Nagelkerke R^2 = .298

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Table 15

Logistic Regression Analysis of Crush Predictors for Sexual Orientation in Gay/Bisexual Males

#	Crush Variables	*B*	*S.E.*	*p*	Odds-ratio
1	I had crushes on girls or adult women after I hit puberty to age 18.	-4.584	1.094	<.001	.010
2	"As a child I always seemed to have a crush on one female or another"	-2.657	.312	<.001	.070
3	I had crushes on boys or adult men after I hit puberty to age 18.	.903	.399	.023	2.467
	Constant	1.609	.387	<.001	5.000

Notes: N = 103; Nagelkerke R^2 = .611
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Table 16

Logistic Regression Analysis of Crush Predictors for Sexual Orientation in Gay/Bisexual Females

#	Crush Variables	*B*	*S.E.*	*p*	Odds-ratio
1	I had crushes on girls or adult women after I hit puberty to age 18.	5.620	1.027	<.001	275.994
2	"As a child I always seemed to have a crush on one female or another"	2.808	.313	<.001	16.577
	Constant	-2.665	.099	<.001	.070

Notes: N = 185; Nagelkerke R^2 = .329
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APPENDIX A

LETTER FROM INSTITUTIONAL RESEARCH BOARD

Office of Research Integrity
Institutional Review Board
401 11th St., Suite 1300
Huntington, WV 25701

FWA 00002704

IRB1 #00002205
IRB2 #00003206

July 23, 2014

Stephen O'Keefe, Ph.D.
Psychology Department

RE: IRBNet ID# 127610-7
At: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. O'Keefe:

Protocol Title:	[127610-7] Effects of Recalled Family Attitudes and Childhood Sexual Experiences on Adult Sexual Attitudes and Adjustment
Expiration Date:	July 20, 2015
Site Location:	MUGC - 1083
Submission Type:	Continuing Review/Progress Report APPROVED
Review Type:	Expedited Review

The above study and informed consent were approved for an additional 12 months by the Marshall University Institutional Review Board #2 (Social/Behavioral) Chair. The approval will expire July 20, 2015. Continuing review materials should be submitted no later than 30 days prior to the expiration date.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral) Coordinator Bruce Day, ThD, CIP at 304-696-4303 or day50@marshall.edu. Please include your study title and reference number in all correspondence with this office.

APPENDIX B

COMPUTER-ASSISTED SELF-INTERVIEW ITEMS

Items from the computer-assisted self-interview (CASI) program S-SAPE1 were utilized with permission from S-SAPE, LLC, 2002, P. O. Box 11801, Charleston, WV, 25339. Permission should be obtained from the rights holder in order to reproduce or utilize any S-SAPE1 items.

Measures of maternal and paternal affection toward the participant

Item 1. "Select the phrase which most closely describes the way that your mother demonstrated affection for you: (1) My mother never kissed or hugged me. (2) My mother seldom kissed or hugged me. (3) My mother often kissed or hugged me."

Item 2. Item 2 was identical to Item 1, except that the word "mother" was replaced with the word "father."

Measures of parental demonstration of affection for one another

Item 3. "Select the phrase that best describes your parent's demonstration of affection for one another in your presence. (1) My parents never kissed or hugged in my presence. (2) My parents sometimes kissed or hugged in my presence. (3) My parents often hugged or kissed in my presence. (4) My parents often hugged or kissed and did some genital petting in my presence. (5) My parents often hugged or kissed in my presence and I witnessed intercourse by sight or sound."

Choices 3-5 were all recoded "3" to produce a graded (1-3) response indicating the amount of parental affection participants witnessed.

Measures of nudity practices within the nuclear home

Item 4. "Before I hit puberty in my family of rearing, it was common for me to see my father nude while he was dressing or in the bathroom etc."

Item 5. “Before I hit puberty in my family of rearing, it was common for my father to see me nude while I was dressing or in the bathroom etc.”

Items 4 and 5 are examples of a total of eight similar items that can be constructed from them by changing the words “father” to “mother” and “before” to “after."

Factor analysis from the current dataset (n = 2,885) with a scree plot and Varimax rotation showed that the scale of eight nudity items (α = .762) were comprised of two sub-scales: a 4-item father-child nudity practices scale (defined as the sum of the four above items containing the word "father," α = .724), hereafter referred to as the "Paternal-Nudity Scale" and a 4-item mother-child nudity practices scale (defined as the sum of the four above items containing the word "mother," α = .829), hereafter referred to as the "Maternal-Nudity Scale." The two subscales were significantly correlated ($r = .235$, $p < .001$). The score on the family nudity scale was defined as the sum of the scores on the paternal and maternal nudity scales.

Measures of parental composition of the nuclear family

Item 6. "Select the choice which best describes your family of rearing whether by biological parents or adoptive parents: (1) My parents remained married (including common-law) and together until I reached 18. (2) My parents divorced or separated, and there was no remarriage or new partner in my home before I reached 18. (3) My parents divorced or separated, and there was a remarriage or a new partner in my home before I reached 18. (4) My parents never married (excludes common-law marriages) before I reached 18 and did not live together. (5) One of my parents died, but there was no remarriage or new partner in my home before I reached 18. (6) One of my parents died, and there was a remarriage or a new partner in my home before I reached 18. (7) I was raised almost exclusively in an orphanage. (8) I was raised in a series of foster homes.

(9) I was raised by my grandparent or grandparents. (10) I was adopted later, and I don't remember my biological parents."

Response "9" was recoded to "1" and all other responses were recoded to "0" to produce a 0/1 dummy variable. This act was repeated for responses "1-6." Responses "7, 8, and 10" were all recorded "1" and all other responses were recoded to "0" to produce a 0/1 dummy variable. This data was grouped to increase the size of the groups and to facilitate analysis.

Measures of the quality of parental relationship

Item 7. "The best way to describe my parents' relationship while I was growing up is: 76: (1) My parents' relationship was not good: there was verbal fighting, anger, criticism, distance, and little or no love or affection. (2) My parents' relationship was very mixed: there were periods of love and affection interspersed with verbal fighting, anger, criticism, or distance. (3) My parents' relationship was reserved: I did not see fighting, criticism, or physical display of affection, but I believe that there was quiet love and respect underneath. (4) My parents' relationship included a lot of physical fighting and/or brutality. (5) My parent' relationship was very good with lots of love, support, and physical affection and few times when there was fighting, anger, criticism or distance."

Response "1" was recoded "1" and all other responses were recoded to "0" to provide a 0/1 dummy variable. This act was repeated for responses "2-5."

Measures of the management of parental disagreement

Item 8. "The best way to describe the way that my parents handled disagreements about how to deal with me as a child was: (1) There was often an obvious disagreement between my parents with my mother taking my part against my father. (2) There was often an obvious disagreement between my parents with my father taking my part against my mother. (3) I was

mostly raised in a single parent family by my mother. (4) I was mostly raised in a single parent family by my father. (5) If my parents had disagreements about how to deal with me as a child, they seemed to work them out where I could not hear, and I saw a united approach to me."

Response "1" was recoded "1" and all other responses were recoded to "0" to provide a 0/1 dummy variable. This act was repeated for responses "2-5."

Measures of maternal and paternal attitudes toward sex

Item 9. "Select the choice which best fits your mother's (or mother figure's) attitude about sex." (1) I had so little contact with my mother that I have no idea what attitude she had. (2) Mother thought sex was dirty and filthy, but she never was able to discuss it with me. (3) Mother thought sex was dirty and filthy, and she did her best to teach her view to me. (4) Mother thought sex was healthy, but she never was able to discuss it with me. (5) Mother thought sex was healthy, and she provided me with healthy information."

Item 10. Item 10 was identical to Item 9, except that the word "mother" was replaced with the word "father."

For each item, response "1" was recoded "1" and all other responses were recoded to "0" to provide a 0/1 dummy variable. This act was repeated for responses "2-5."

Measures of the sex of childhood/adolescent crushes

Item 11. "The best way to describe the genders of the individuals outside my family that I had crushes on (or was in love with) before I hit puberty is: (1) only boys or adult men before I hit puberty (2) only girls or adult women before I hit puberty (3) mostly boys or adult men but some girls or adult women before I hit puberty (4) mostly girls or adult women but some boys or adult men before I hit puberty (5) I never had crushes on anybody outside my family before I hit puberty."

Item 12. Item 12 was identical to Item 11, except that the phrase "before I hit puberty" was replaced with the phrase "from the time I hit puberty to age 18."

Item 13. "As a child, I always seemed to have a crush on one female or another."

Item 14. "As a child, I always seemed to have a crush on one male or another."

Measure of adult sexual orientation

Item 15. "The best way to describe how open and honest I am about my sexual preference is: 80: (1) All my friends and family know that I am straight, and that is what I am. (2) All my friends and family know that I am gay, lesbian, bisexual, or trans-gendered, and that is what I am. (3) Some of my friends or family still think that I am straight, but actually I know that I am really gay, lesbian, bisexual, or trans-gendered. (4) My friends and family mostly think that I am straight, but I am really mixed up about whether I am straight or gay, lesbian, bisexual, or trans-gendered. (5) I have no sexual preference, and I have never engaged in any sort of sex with a partner."

Response "1" was recoded "1" and all other responses were recoded to "0" to provide a 0/1 dummy variable. This act was repeated for responses "2-5."

CURRICULUM VITAE

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EDUCATION

Ed.S in School Psychology
Marshall University, Huntington, WV
NASP-approved and NCATE-accredited program
Thesis: Nuclear Family Dynamics: Predictors of Childhood Crushes and Adult Sexual Orientation
Expected May 2015

M.A. in Psychology with School Psychology Emphasis
Marshall University, Huntington, WV
May 2013

B.A. in Psychology and English
Marshall University, Huntington, WV
May 2011

CERTIFICATION

Nationally Certified School Psychologist, Expected May 2015
West Virginia School Psychology License, Expected May 2015
Therapeutic Crisis Intervention System for Schools (TCIS), December 2014
First Aid CPR AED, August 2014
West Virginia School Psychology Permit, August 2014
Crisis Prevention Intervention (CPI), 2013

FIELD EXPERIENCES IN SCHOOL PSYCHOLOGY

School Psychologist Intern, Jackson County Schools*, 2014-2015*
Rachel James, Supervising School Psychologist
Kenna, Fairplain, Evans, Cottageville, and Gilmore Elementary Schools

- Conducted a risk assessment on a student (grade 8)
- Conducted a systems-level evaluation of graduation data
- Conducted comprehensive psycho-educational assessments for students PK-AD
- Conducted Functional Behavioral Assessments
- Consulted with teachers and administrators about students
- Implemented academic and behavioral interventions with students

- Participated in a school intervention team
- Participated in IEP meetings
- Provided group counseling to students (grade 4) at one school
- Provided individual counseling to six students (grades 4-5)

School Psychologist Intern/Behavior Specialist, Kanawha County Schools*, 2013-2014*
Libby Bird and Karen Cummings, Supervising School Psychologists

- Compiled data to evaluate the Chance Program
- Conducted comprehensive psycho-educational assessments for students PK-AD
- Conducted Functional Behavioral Assessments
- Consulted with teachers and administrators about students
- Created behavior plans and provided support to teachers for plan implementation
- Implemented academic and behavioral interventions with students
- Offered brief counseling for students after the water crisis
- Participated in IEP meetings
- Participated in school intervention teams
- Provided individual counseling to one student (grade 1)

School Psychology Practicum Student, Marshall Graduate College*, Summer 2013*
Stephen O'Keefe, PhD, NCSP, Supervising Faculty Member
A 6–week summer enrichment program for enrolled students

- Administered DIBELS, AIMSweb, and BIMAS to measure student performance
- Assisted with the differentiation of instruction within the classroom
- Completed psycho-educational evaluations for students PK-5
- Conferenced with parents to review assessment results and recommendations
- Participated in weekly team collaboration meetings
- Provided a parent training about the referral process (e.g. SAT, MDET, EC)
- Provided group counseling to six students (grade 1)
- Provided individual counseling to three students (grade 1)

School Psychology Practicum Student, Putnam County Schools*, 2011-2013*
Angela Sullivan, Supervising School Psychologist
Winfield Middle and Winfield High

- Administered curriculum-based assessments to measure student performance
- Attended IEP and SAT meetings
- Completed classroom observations in general and special education classrooms
- Conducted Functional Behavioral Assessments
- Conducted mathematics tutoring sessions with one student (grade 6)
- Consulted with teachers and administrators about students
- Created behavior plans and provided support to teachers for plan implementation
- Evaluated the crisis intervention plan at one school
- Provided group counseling to eight students (grade 7)

- Provided individual counseling to one student (grade 8)

GRADUATE ASSISTANTSHIP

Program Assistant, Marshall University, School Psychology Program*, 2012-2013*
Sandra Stroebel, PhD, NCSP, Supervising Faculty Member
A 12-month assistantship consisting of 10 hours per week

- Assisted with tasks related to NASP and NCATE re-accreditation (e.g. compiling documents, analyzing data, creating graphs)
- Created an online calendar to facilitate the summer practicum evaluations
- Developed program recruit materials (e.g. designing a program brochure, updating the recruitment information database)
- Supported program faculty with course-related tasks (e.g. grading assignments, scoring standardized assessments, editing theses and research papers, updating curriculum vitaes)

RELATED EXPERIENCE

Mental Health Consultant, Appalachian Council Headstart*, 2012-2013*
Fred Krieg, PhD, NCSP, Supervising Psychologist
A part-time position providing consultation for pre-school students in four counties

- Collaborated with teachers on the creation/implementation of behavioral plans
- Completed classroom behavioral observations
- Consulted with teachers and administrators about students
- Drafted follow-up reported on each referred student

PUBLICATIONS

Beard, K. W., Stroebel, S. S., O'Keefe, S. L., Harper-Dorton, K. V., Griffee, K., Young, D. H., Swindell, S., … Campbell, N. M. (submitted for publication). Childhood and adolescent sexual behaviors predict adult sexual orientations in men.

PROFESSIONAL AFFILIATIONS

National Association of School Psychologists
West Virginia School Psychologists Association