Psychology of Sexual Orientation and Gender Diversity
2016, Vol. 3, No. 1, 11–26

2329-0382/16/$12.00 http://dx.doi.org/10.1037/sgd0000160

Reconsidering Male Bisexuality: Sexual Activity Role and Sexual Attraction in Samoan Men Who Engage in Sexual Interactions With *Fa'afafine*

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In many non Western cultures, same-sex attracted males are markedly feminine in terms of their gender role presentation and are recognized as members of a "third" gender. These third gender males engage in sexual activity with masculine males who are recognized as men. The sexual orientation of these masculine men remains an open question. Using a Samoan sample (N = 100), the current study employed measures of self-report and viewing time (a measure that assesses sexual interest based on the length of time individuals attend to stimuli images presented on a computer screen) to examine differences in patterns of sexual attraction among: (a) men who only engage in sexual interactions with women, (b) men who engage in sexual activity with third gender males (known locally as *fa'afafine*) but only receive fellatio, (c) men who both perform and receive fellatio with their *fa'afafine* sexual partner(s), and (d) *fa'afafine*, themselves. Inferential statistical analyses were used to compare groups. Our results indicate that these groups are distributed on a scale of sexual attraction ranging from primarily attracted to women to primarily attracted to men, respectively. These results suggest that male sexual orientation is a continuous trait, is tied to sexual activity role, and its expression is influenced by culture. Moreover, the present study highlights the importance of conducting quantitative, experimental research in non-Western cultures so as to garner a more comprehensive understanding of those aspects of sexuality that are universal and those that are cross-culturally variable.

Keywords: bisexuality, male sexual orientation, response latency, Samoa, viewing time

Supplemental materials: http://dx.doi.org/10.1037/sgd0000160.supp

Contrary to Kinsey and colleagues' (Kindsey, Pomeroy, & Martin, 1948) assertion that males cannot be divided into "sheep and goats," psychological research conducted in Western cultural settings largely supports the view that male sexual orientation[1] is overwhelmingly dichotomous, not continuous, in nature[2] (e.g., Chivers, Rieger, Latty, & Bailey, 2004; Chivers, Seto, & Blanchard, 2007; Freund, 1963; Gangestad, Bailey, & Martin, 2000; Gates, 2011; Imhoff et al., 2010; Israel & Strassberg, 2009; Lauman, Gagnon, Michael, & Michaels, 1994; Lippa, 2012; Lippa, Patterson, & Marelich, 2010; Rieger, Chivers, & Bailey, 2005; Rieger & Savin-Williams, 2012; Rullo, Strassberg, & Israel, 2010; Suschinsky, Lalumière, & Chivers, 2009; Suschinsky & Lalumière, 2011). For example, studies indicate that males' self-reported sexual feelings are largely directed to females or to males, but not to both (e.g., Gangestad, Bailey, & Martin, 2000; Lauman

This article was published Online First January 25, 2016.

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We thank Leituala Kuiniselani Toelupe Tago-Elisara, Louisa Apelu, Laulu Seuamuli, Henry Taefu, Paul Ah Kuoi, Trisha Tuiloma, Alatina Ioelu, John Sylla, Samoan Ministry of Women, Community and Social Development, Samoan Immigration, the Tapuai Kuka II family of Savai'i, and all of the individuals who agreed to participate in our study. Various stages of this research were supported by the University of Lethbridge, Victoria University of Wellington and the University of Stirling; by a SSHRC Masters Scholarship to L.J.P.; by a New Zealand International Doctoral Scholarship to B.J.D.; by a Royal Society University Research Fellowship to A.C.L.; and, by a Natural Sciences & Engineering Research Council of Canada Discovery Grant and an American Institute of Bisexuality grant to P.L.V.

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[1] *Sexual orientation* in males is defined here as *sexual attraction and/or arousal* to members of the other sex, the same sex or both. Many researchers studying sexual orientation in males measure self-reported patterns of sexual attraction/arousal rather than sexual behavior or sexual identity, because sexual behavior and identity can be incredibly constrained by local culture and because sexual attraction motivates behavior and identity, rather than vice versa. *Romantic love* is dissociable from sexual desire (Diamond, 2003). Consequently, sexual attraction considered a better measure of *sexual* orientation then patterns of romantic attachment (LeVay, 2010).

[2] The terms *male* and *female* refer to an individual's biological sex, regardless of the individual's gender role presentation as a boy/man, girl/woman, or otherwise. Third gender males are not recognized as *men* or *women* in their respective cultures and, as such, we refer to them here as male, but not men.

et al., 1994). Studies that assess viewing time response latencies for stimuli of males and females indicate that most males demonstrate prolonged viewing time response latencies when presented with stimuli depicting their preferred sex compared with their nonpreferred sex (Imhoff et al., 2010; Israel & Strassberg, 2009; Lippa, 2012; Lippa, Patterson, & Marelich, 2010; Rieger & Savin-Williams, 2012; Rullo, Strassberg, & Israel, 2010). Similarly, physiological measures indicate that most males display genital arousal to one sex or the other, but not to both (Chivers, Rieger, Latty, & Bailey, 2004; Chivers, Seto, & Blanchard, 2007; Freund, 1963; Rieger, Chivers, & Bailey, 2005; Suschinsky, Lalumière, & Chivers, 2009; Suschinsky & Lalumière, 2011).

On the basis of these findings it has been suggested that male sexual orientation can be characterized as a mechanism, analogous to a compass, that directs one's sexual attraction, arousal, fantasy, and feelings (Bailey, 2009). Like the needle of a compass, male sexual orientation orients in one direction—either toward males or females—and not in multiple different directions at once. Accordingly, monosexual sexual orientations such as *gynephilia* (i.e., sexual attraction toward adult females) or *androphilia* (i.e., sexual attraction to adult males) should be expressed in males, but male bisexuality should be quite rare.

In contradistinction to literature that appears to support the compass model of male sexual orientation, many studies, from the social sciences, the humanities, and public health, have documented the existence of males who report sexual attraction toward both sexes (e.g., Collins, 1998; Dodge & Sandfort, 2007; Rust, 2002). Critics of this literature cite research indicating that that subjective measures of sexual orientation are prone to distortion (e.g., Stokes, Damon, & McKirnan, 1997; Guittar, 2013).[3] More recently, however, a growing number of studies that have employed more objective measures have raised questions about the validity of the compass model of male sexual orientation, as well. For example, when stringent participant inclusion criteria are employed,[4] some males do indeed demonstrate a unique bisexual pattern of physiological arousal as measured by genital arousal (i.e., penile tumescence: Rosenthal, Sylva, Safron, & Bailey, 2011; Rosenthal, Sylva, Safron, & Bailey, 2012) and by pupil dilation (Rieger & Savin-Williams, 2012). Furthermore, viewing time research that has employed less stringent recruitment criteria has still found that self-identified bisexual males exhibited a unique bisexual pattern of sexual attraction (Ebsworth & Lalumière, 2012; Lippa, 2013). In sum, it has been demonstrated that some Western males do demonstrate a bisexual pattern of sexual attraction and arousal, when more objective measures are employed.

Taken together, the studies described above suggest that, although some males demonstrate a bisexual pattern of sexual attraction and arousal, a category-specific pattern of monosexual attraction and arousal (i.e., either androphilia or gynephilia) is most common. Nevertheless, the generalizability of this conclusion is limited by the fact that all of the studies in question were all conducted in Western cultural settings where gendered categories of personhood are conceptualized as dichotomous and consisting of "men" versus "women." However, in many non-Western cultures, gender categories existing outside the man/woman binary are recognized. In particular, alternative gender categories are routinely used in non-Western cultures to describe males who are markedly feminine with respect to their gender role presentation (for examples, see below). With few exceptions (e.g., Nanda, 1999), these feminine males retain their male genitalia. In the academic literature, these males are sometimes described as occupying a "third gender" category (e.g., Herdt, 1994).

In adulthood these feminine males are, almost always, exclusively androphilic. They do not, however, engage in sexual activity with one another. Rather, they are attracted to, and engage in sexual activity with, masculine males who self-identify, and are identified by others, as "men" (Murray, 2000). Examples include, but are by no means limited to, the *kathoey* of Thailand (Totman, 2003), the *kothi* of India (Asthana & Oostvogels, 2001; Ramanathan et al., 2013), *xanith* of Oman (Wikan, 1977), the Lakota *winkte* of North America (Williams, 1992), the Zapotec *muxes* of Mexico (Chiñas, 1992), the Maale *ashtime* of Ethiopia (Donham, 1990). The present study was conducted in Samoa, a culture in which feminine, androphilic males are recognized by themselves and by others, as a third gender, known locally as *fa'afafine* (Vasey & VanderLaan, 2014).

The term *fa'afafine* literally translates to mean "in the manner of a woman," however, the extent to which *fa'afafine* dress and act like women varies (Bartlett & Vasey, 2006; Schmidt, 2003; Vasey, Pocock, & VanderLaan, 2007). Although many *fa'afafine* choose to dress like women or to adopt aspects of female-typical gender roles as part of their everyday lives, others adopt only certain female-typical aspects of appearance or behavior, or provisionally adopt (or emphasize) certain feminine characteristics depending on the social context or stage of life. For example, some *fa'afafine* will wear traditional two-piece women's outfit—a *puletasi*—to work or formal events. During a *taualuga* (i.e., traditional Samoan dance), *fa'afafine* assume the women's role, not the man's. At the same time, no *fa'afafine* obtains a *malu* (i.e., traditional Samoan women's tattoo) and they might help build the *umu* (i.e., a stone oven which is build in the ground, outside, and the construction of which is traditionally considered men's work). To give another example, one *fa'afafine* participant mentioned to us that, in her twenties, she would wear balloons filled with water to mimic breasts whenever she was at nightclubs, but now that she is older she does not do so. A small minority of self-identified *fa'afafine* make little attempt to enhance their femininity in adulthood, but like androphilic males everywhere (e.g., Zheng, Lippa, & Zheng, 2011), they tend, on average, to more feminine then their gynephilic counterparts.

Almost without exception, *fa'afafine* retain their male genitalia. Only an extremely small number of *fa'afafine* who have lived in Western countries elect to undergo sex reassignment surgery. Despite their vaginoplasties, the few such individuals that exist are

[3] Bisexuality identity does not necessarily imply a history of bisexual feelings. Rather, men may adopt transitional bisexual identities in the process of trying to make sense of divergent parts of their current and previous feelings and histories. For example, they may have had emotionally satisfying romantic relationships with women despite feeling sexual attractions only for men. In addition, their previous heterosexual encounters may have been unsatisfying, but not distasteful. Others may feel that it is easier to admit one's homosexual feelings if they are not appearing to "rule out" the possibility of heterosexual feelings and relationships.

[4] To meet the inclusion criteria for these studies self-identified bisexual men must have (a) been involved in romantic relationships with both men and women that lasted over three months, (b) had engaged in sexual interactions with two or more men and two or more women, and (c) been over the age of 25.

not considered "women" in Samoa. Rather, they continue to be identified by Samoans as "*fa'afafine*." A few *fa'afafine* use estrogenic hormones to promote the development of breasts. Because dosage can be erratic, breast development is relatively modest. Similarly, there is variability with respect to the degree to which *fa'afafine* pluck their facial hair; some do so regularly, while others merely shave and the later group sometimes have "5 o'clock shadows." *Fa'afafine* retain various other markers of male morphology including male-typical body fat distribution and facial structure.

Fa'afafine are not sexually attracted to one another, nor do they engage in sexual relationships with one another. Instead, *fa'afafine* are almost exclusively attracted to masculine males who, within the context of Samoan culture, self-identify as "straight men" (Bartlett & Vasey, 2006; Schmidt, 2003; Vasey et al., 2007). The moniker "straight man" refers to a male who identifies as a man and is masculine, *regardless of his sexual partner choice*. It is not uncommon for Samoan participants to say that at some point in their lives, most "straight men" have engaged in sexual interactions with *fa'afafine.* As such, the meaning of the term "straight man" is very different in Samoa then it is in Western cultural contexts. Western concepts of sexual orientation identity categories (e.g., gay, straight) do not translate into a Samoan cultural context and, as such, have not been traditionally utilized by Samoans to construct their sexual orientation identities (Mageo, 1996; Shore, 1981).

In Samoa, *fa'afafine* enjoy a high level of social acceptance that, although not absolute, stands in stark contrast to the overt discrimination experienced by Western transgender individuals. Indeed, *fa'afafine* are highly visible, active, and productive members of Samoa society. They occupy all manners of positions from stay-at-home caregivers to Chief Executive Officers in various organizations. The Prime Minister of Samoa, the Honorabe Tuilaepa Sailele Malielegaoi, is Patron of the National *Fa'afafine* Association and has spoken publically on many occasions about the value of *fa'afafine* for Samoan society.

Using self-report and viewing time response latency measures, Petterson, Dixson, Little, and Vasey (2015) found that Samoan *fa'afafine* exhibited an androphilic pattern of sexual attraction, while Samoan men who only engage in sexual activity with women exhibited a gynephilic one. In contrast, Samoan men who engage in sexual interactions with *fa'afafine* demonstrated a unique bisexual pattern of sexual attraction that was intermediate to that of the other two groups. However, Petterson et al., (2015) noted that masculine Samoan men who engage in sexual activity with *fa'afafine* did not represent a homogeneous group. For example, these men varied with respect to their self-reported sexual attraction to stimuli depicting men and women. One possible explanation for these differences is that the men in question also vary with respect to the sexual activities they engaged in with their *fa'afafine* partners. This, in turn, may have influenced their subjective reports of sexual attraction.

Although evidence is limited, cross-cultural research indicates that masculine men who engage in sexual activity with feminine androphilic males do indeed vary with respect to the roles they adopt during sexual activity. For example, research conducted in India shows that masculine men who engage in sexual activity with feminine androphilic males (known locally as *kothi*) vary in their willingness to perform certain types of sexual behaviors (Asthana & Oostvogels, 2001; Ramanathan et al., 2013). Masculine men known as *panthi* will only adopt the insertive role during oral intercourse with *kothi*, whereas masculine men known as *double-deckers*, will adopt both the insertive and receptive roles.

Similarly, Weinberg and Williams (2010) found that there were two subsets of American men who displayed sexual interest in self-identified transgender women whose bodies were feminized, but who nonetheless retained their penises. One group, identified as 'straight' and reported sexual attraction to transgender women's feminine presentation and sexual prowess. These 'straight' men reported that they made an effort to ignore the fact that the transgender women had male genitalia and some even noted that they were averse to the male genitalia. The other group, who identified as 'bisexual,' reported that they were sexually attracted to the amalgamation of feminine and masculine characteristics encompassed by these transgender women. The majority of men interviewed who identified as 'bisexual' reported a willingness to be fellated by, and to fellate, the transgender women who were their sexual partners, whereas, those who identified as 'straight,' typically only allowed themselves to be fellated by transgender women.

The present study was undertaken to examine the effects of sexual activity role on sexual attraction in men who engage in sexual interactions with *fa'afafine*. Self-report and viewing time measures were employed to assess sexual attraction. Viewing time is measured by asking participants to subjectively rate the sexual attractiveness of stimuli while covertly recording response time latencies (i.e., the amount of time elapsed between the presentation of the stimulus and the participant's response). It has been demonstrated that viewing time is a reliable means of assessing male sexual orientation (Imhoff et al., 2010; Israel & Strassberg, 2009; Quinsey, Ketsetzis, Earls & Karamanoukian, 1996; Rieger, & Savin-Williams, 2012; Rullo, Strassberg, & Israel, 2010).[5] We compared patterns of sexual attraction between (a) masculine men who engage in sexual interactions with *fa'afafine* and who only allow themselves to be fellated, versus (b) those who actively fellate, and are fellated by, their *fa'afafine* sexual partners. We additionally compared the measures of sexual attraction for these two groups to those of (a) Samoan men who only engage in sexual interactions with women, and (b) to *fa'afafine*, themselves.

We predicted that the four participant groups would differ significantly from each other for both of our measures of sexual attraction. Further, we predicted that these groups would be distributed on a scale ranging from exclusive gynephilic to exclusive androphilic attraction in the following manner: (a) masculine men who only engage in sexual interactions with women, (b) masculine men who are only fellated by their *fa'afafine* sexual partners, (c) masculine men who fellate, and are fellated by, their *fa'afafine* sexual partners, and (d) *fa'afafine,* themselves. If so, then this would furnish some support for Kinsey and colleagues' (1948) assertion that male sexual orientation does indeed exist on a

[5] Because viewing time does not measure autonomic response it may be vulnerable to voluntary manipulation (see Imhoff, Schmidt, Weiβ, Young, & Banse, 2012). For example, participants could, theoretically, attempt to respond in a manner that they perceive to be socially desirable. This, of course, assumes that participants are aware that their viewing time is being recorded and are aware of what a socially desirable pattern of viewing time would look like.

continuum, despite the relatively dichotomous pattern obtained from some studies conducted in Western cultures. Clarity on this issue is essential if we seek to build accurate models for the development and evolution of male sexual orientation.

Method

Ethics Statement

This research was approved by the University of Lethbridge Human Subjects Research Ethics Committee. A Samoan Research Visa was obtained from Samoan Immigration under the auspices of the Samoan Ministry of Women, Community, and Social Development. Participants were required to provide informed written consent before taking part in the study.

Participants

All participants were recruited from the island of Upolu, the most highly populated island of Independent Samoa, using a network sampling procedure, which involved contacting initial participants who display qualities of interest (i.e., status as [a] a *fa'afafine*, [b] a man who engages in sexual interactions with women exclusively, or [c] a man who engages in sexual interactions with *fa'afafine*) then obtaining referrals from them to additional participants who, in turn, provide further referrals, and so on. The minimum sample size was set at 10, as comparable samples sizes have been employed by previous studies to identify a bisexual pattern of sexual attraction (e.g., Ebsworth & Lalumière, 2012). Once these sample sizes were obtained, recruitment of *fa'afafine* and men who only engage in sexual interactions with women was conducted on an ad hoc basis and active data collection focused on obtaining as many men as possible who engaged in sexual interactions with *fa'afafine*. Data collection continued in this manner for the remainder of the 2013 field-season, which was 2-months in duration. PLV collected further data on men who engage in sexual interactions during the 2014 for a period of three weeks.

All *fa'afafine* participants self-identified as such, had only engaged in sexual interactions with men, and had done so within the past year ($n = 21$). Participants who self-identified as men were categorized as "men who only engaged in sexual interactions with women" if they had engaged in sexual interactions exclusively with women throughout their lives and had done so within the past year ($n = 31$). Participants who self-identified as men were categorized as "men who engaged in sexual interactions with *fa'afafine*" only if they had engaged in sexual interactions with *fa'afafine* within the past year and had done so previously, as well ($n = 50$).

During the interview, the men who engage in sexual interactions with *fa'afafine* were asked about the sexual activities they engaged in with *fa'afafine*. Specifically, they were asked whether they had engaged in fellatio with *fa'afafine*. If they had, they were then asked whether they had previously (a) performed fellatio on *fa'afafine* partner(s) but had not received it, (b) received fellatio from *fa'afafine* partner(s) but had not performed it, or (c) had both performed fellatio on, and received fellatio from, *fa'afafine* partner(s). Of the men who engaged in oral sexual interactions with *fa'afafine*: one participant reported that he received fellatio from *fa'afafine* partners and that he had performed fellatio on men but not *fa'afafine*, and one participant reported that he had performed fellatio on a *fa'afafine* partner once when he was young (≤18 years of age), but following that he never did so again. These participants were not retained for subsequent analysis. In total, 100 participants were included in the subsequent analysis.

Of the retained men who engaged in sexual interactions with *fa'afafine* ($n = 48$), 65.3% ($n = 31$) had received fellatio from *fa'afafine* partners but had not performed it and 34.7% ($n = 17$) had performed fellatio on, and had received fellatio from, *fa'afafine*. None of the participants had performed fellatio on *fa'afafine* partners without receiving it. Participants who had received fellatio from *fa'afafine* partners, but had not performed it are referred to here as *fa'afafine's fellatrant partners*. *Fellatrant* refers to a male who is receiving fellatio. Participants who had performed fellatio on, and had received fellatio from, *fa'afafine* partners are referred to here as *fa'afafine's versatile fellatio partners.*

Men who engaged in sexual interactions with *fa'afafine* varied in terms of their sexual partner profiles. For example, these men could have engaged in sexual interactions: (a) only with *fa'afafine*, (b) with *fa'afafine* and women, (c) with *fa'afafine* and men, or (d) with *fa'afafine,* women, and men. Table 1 contains information pertaining to the percentage of participants who fit into each of these groups relative to their entire life span and, more narrowly, in terms of the past year.

The age range of the *fa'afafine* participants was 19 to 43 ($M = 29$, $SD = 7.06$), that of men who only engaged in sexual interactions with women was 20 to 46 ($M = 29.71$, $SD = 8.88$), that of *fa'afafine's* fellatrant partners was 18 to 42 ($M = 23.71$, $SD = 5.37$), and that of *fa'afafine's* versatile fellatio partners was 19 to 34 ($M = 24.41$, $SD = 4.40$). *Fa'afafine,* men who only engaged in sexual interactions with women, *fa'afafine's* fellatrant partners, and *fa'afafine's* versatile fellatio partners reported that they earned between 0 to 99 tala: 23.8%, 54.8%, 74.2%, 64.7%, respectively; 100 tala and over: 76.2%, 45.2%, 25.8%, 35.3%, respectively. When asked about their degree of religiosity, *fa'afafine,* men who only engaged in sexual interactions with women, *fa'afafine's* fellatrant partners, and *fa'afafine's* versatile fellatio partners reported that they were: highly religious: 23.8%, 35.5%, 22.6%, 23.5%, respectively; somewhat religious: 71.4%, 61.3%, 71.9%, 64.7%, respectively; slightly religious: 4.8%, 3.2%, 6.5%, 11.8%, respectively. The majority of participants reported that they were single or casually dating (*fa'afafine,* men who only engaged in sexual interactions with women, *fa'afafine's* fellatrant partners, and *fa'afafine's* versatile fellatio partners: 90.5%, 51.6%, 90.3%, 76.5%, respectively). A higher percentage of the men who only engaged in sexual activity with women were in a committed relationship or married (45.2%) compared with the participants in the other groups (*fa'afafine*,[6] 4.8%; *fa'afafine's* fellatrant partners, 9.7%; *fa'afafine's* versatile fellatio partners, 23.5%). One man who engaged in sexual interactions only with women and one *fa'afafine* reported that they were widowed or divorced.

Measures

The study consisted of a viewing-time experiment followed by a brief biographic questionnaire (displayed in the Appendix) and,

[6] *Fa'afafine* are not permitted to marry. The *fa'afafine* who reported that they had been divorced or widowed had likely previously been in a committed relationship.

Table 1
Description of Sexual Partners of "Men Who Engage in Sexual Interactions With Fa'afafine" Throughout Participants' Lifetime and Within the Prior Year

Number of participants	Percent of sample category (%)	Gender category of individuals with whom participants have engaged with sexually		
		Men	Women	*Fa'afafine*
Fellatrant partners				
Throughout their lives:				
(n = 5)	16.1	✓	✓	✓
(n = 26)	83.9		✓	✓
Within the past year:				
(n = 1)	3.2	✓	✓	✓
(n = 29)	93.5		✓	✓
(n = 1)	3.2			✓
Versatile fellatio partners				
Throughout their lives:				
(n = 8)	47.1	✓	✓	✓
(n = 7)	41.2		✓	✓
(n = 2)	11.8	✓		✓
Within the past year:				
(n = 6)	35.3	✓	✓	✓
(n = 9)	52.9		✓	✓
(n = 2)	11.8			✓

lastly, a brief semistructured interview. The text accompanying the viewing-time experiment and questionnaire were translated and back-translated into Samoan by two Samoan-speaking research assistants. One of the Samoan research assistants (a *fa'afafine*) was present to provide instructions to all of the participants and to answer questions.

Before the actual experiment, participants viewed nine trial images of men and women to familiarize them with the task. Because some participants were unfamiliar with computers, if they did not understand the experiment following the first trial, a second trial was conducted. If, following a third trial, the participants did not understand the task, they were given payment and thanked for their time. The experiment proceeded following one, two, or three practice trials, if (a) the participants stated they understood the task, and (b) were judged to have understood it by both the Samoan research assistant and the last author.

The viewing-time portion of the study was conducted using Empirisoft's MediaLab viewing-time software. Participants were shown a series of images that included men's faces, women's faces, and neutral stimuli (i.e., cartoon faces composed of a circle with two dots for eyes and a straight line for a mouth each of which varied slightly) and told that the purpose of the experiment was to obtain their subjective sexual attraction ratings for these images. Participants were instructed to take as long as they needed to complete the task and to carefully appraise each photo before rating it. Examples of the stimuli are displayed in the supplemental material. The experiment consisted of 31 images (excluding the nine-trial images).

The first image in the actual experiment was a cartoon face image. Participants' response to this first neutral image was deleted from the analysis to remove any confounds associated with transitioning from the trial to the actual experiment. The remaining experiment was comprised of 10 target images of women's faces, 10 target images of men's face, and 10 cartoon face images, which were presented in a randomized order. As each image was displayed, participants were asked to respond to the question, which appeared at the top of the image: "How would you feel about having sex with this person?" Participants' responses were measured using a 7-point Likert-type scale ranging from 1 (*very unpleasant*) to 7 (*very pleasant*). These response options appeared in a boxed column at the right of the image. Participants indicated their responses by clicking on the appropriate boxed number using a computer mouse.

Unbeknownst to the participants, as they were providing their self-reported ratings of sexual attraction to the target images, the time between the presentation of the stimulus and participants' response was being simultaneously recorded. It is important to note that this latent period, which is typically referred to as a "viewing time" may reflect the time required to respond to the task of rating attraction (see Imhoff et al., 2010; Imhoff, Schmidt, Weiβ, Young, & Banse, 2012). For ease of comparison across studies, we will refer to this measure as *viewing time*.

The Samoan research assistant was present during the trial portion of the viewing-time experiment, but left prior to the actual experiment commencing. The last author was present throughout the entire period of data collection for every participant. During the experiment he remained silent, did not move, did not look directly at the participants, and watched the computer screen out of the corner of his eye. The experiment was discontinued for any of the following nonexclusive reasons, including, if the participant (a) looked away from the computer screen, (b) called out to someone, (c) lost control of the mouse, (d) moved rapidly through the images in a "machine-gun" fashion such that the last author inferred that they were not actually looking at the images but rather rushing to complete the experiment, (e) scored every one of the 31 experimental images the same, including the first neutral face image. This protocol resulted in incomplete viewing-time data from 11 participants (3 *fa'afafine*, 5 men who had engaged in sexual interactions with *fa'afafine*, 3 men who only engaged in sexual interactions with women).

Following the viewing-time experiment, participants were asked whether they had had sexual feelings for, and had engaged in sexual interactions with, men, women, and *fa'afafine* (a) at any point in their lives, and (b) within the past year. Participants that had engaged in sexual interactions with *fa'afafine* were asked whether they engaged in active and/or passive fellatio with their *fa'afafine* sexual partners. The Samoan research assistant then returned to help the participant complete the biographic questionnaire portion of the study. During the biographic questionnaire portion of the study, participants were asked to report their age, religiosity ("not religious," "somewhat religious," "very religious"), weekly income (in Samoan Tala; 1 Tala is approximately .40 USD), and relationship status ("single," "casually dating," "in a committed relationship," "married," "divorced or widowed").

Upon completion of the biographic questionnaire, participants were debriefed and invited to ask any questions they might have about the study. All participants were thanked and given 20 Western Samoan Tala as a gift to compensate them for their time.

Stimulus Construction

Twenty-four Samoan men (age range = 18–28 years, M = 22.04, SD = 2.71) and 24 Samoan women (age range = 18–27 years, M = 21.67, SD = 2.76) were photographed under standard lighting conditions posing with a neutral expression. The target images were created using composite images of the faces of Samoan men and women and the composite faces were then manipulated to render them more masculine or feminine. To manipulate masculinity/femininity, 20 'base faces" (10 men, 10 women) were constructed. The base faces were composite average faces that were constructed from two individual facial photographs in line with previous methods (Benson & Perrett, 1993; Tiddeman, Burt, & Perrett, 2001; Little & Hancock, 2002). Individual facial photographs were paired randomly from a pool of 40 face images (20 men, 20 women) that were, themselves, drawn randomly from the overall sample of Samoan men's (n = 24) and women's faces (n = 24). The composite base faces were then made symmetric prior to being transformed on a sexual dimorphism dimension using the shape linear difference between a composite of 50 men and an equivalent composite of 50 young adult women, in line with previous methods (Perrett et al., 1998). Transforms represented 50% ± the difference between these two composites, resulting in 20 faces that were + 50% of the shape of the relevant sex (10 masculinized faces of men, 10 feminized faces of women; see supplemental material). Composite faces are representative of the average traits of the faces within them, reducing idiosyncratic differences between faces. By following this procedure, the faces of men were transformed to be more masculine and the faces of women were transformed to be more feminine. Doing so ensured that the target images were clearly masculine or feminine, thereby eliminating any possibility that the images could have been viewed as androgynous.

Data Analysis

For each participant we calculated their mean response to the images of men, images of women, and neutral images for both the measure of viewing time and self-report. To control for individual differences in responsiveness we calculated within-participant z-scores for both self-reported attraction and viewing time response latencies (in line with procedures that have been employed previously in physiological assessments of sexual orientation; e.g., Chivers et al., 2004; Rieger & Savin-Williams, 2012). Doing so produced a mean of 0 and standard deviation of 1 for each measure.

Mean self-reported sexual attraction and *mean response time latencies* were calculated for participants' response to the target images of men, the target images of women, and the neutral images. To directly compare individual participants' responses to the images of men versus the images of women, the discrepancy in their mean responses to both types of images were calculated. The *mean discrepancies in self-reported sexual attraction* and *response latencies* were calculated using the following formula: mean self-reported sexual attraction rating (or response latency for images of men) – mean self-reported sexual attraction rating (or response latency for images of women) = discrepancy in self-reported sexual attraction ratings (or response latencies). A score greater than 0 indicated androphilic attraction; a score lower than 0 indicated gynephilic attraction.

We also created two variables for participants' mean response to their lesser-preferred gender, namely, *mean self-reported sexual attraction to their lesser-preferred gender* and *mean response latencies for their lesser-preferred gender*. To do so, we compared participants' mean response to images of women and images of men and the lower of the two was taken as the mean response to their lesser-preferred gender.

Statistical Analysis

Analysis was conducted using IBM SPSS Statistics version 22. Analyses of the biographic variables were conducted to determine whether any should be included as covariates. A one-way ANCOVA, (with the alpha level was set at a = .05) was conducted to examine whether the mean discrepancies in self-reported sexual attraction differed as a function of group, with age included as a covariate. A one-way ANOVA (with the alpha level set at a = .05) was conducted to examine whether the mean discrepancies in response latencies differed as a function of group. Contrast comparisons were conducted between the groups that we predicted would be the least likely to differ significantly, specifically (a) men who only engaged in sexual interactions with women versus men who were *fa'afafine's* fellatrant partners, (b) men who were *fa'afafine's* fellatrant partners versus men who were *fa'afafine's* versatile fellatio partners, and (c) men who were *fa'afafine's* versatile fellatio partners versus *fa'afafine*, themselves.

It has been suggested that a bisexual pattern of sexual attraction could be ascertained if an individual demonstrated greater attraction to their lesser-preferred gender than androphilic or gynephilic individuals (e.g., Bailey, 2009; Bailey, Rieger, & Rosenthal, 2011; Rieger et al., 2015). As such, we examined whether mean self-reported sexual attraction ratings for individuals' lesser-preferred gender differed as a function of group using a one-way ANCOVA, with age as a covariate. We also examined whether mean response latencies for individuals' lesser-preferred gender differed as a function of group using a one-way ANOVA. The alpha level was set at a = .05 for both of these analyses. Post hoc pairwise comparisons were conducted using Fisher's LSD.

Following between-groups analyses, within-group one sample *t*-tests were conducted to assess the extent to which participants' self-reported sexual attraction and response latencies differed from a theoretically equal response to images of men and women. A test value of 0 was used for all groups because this value indicates equal attraction to both men and women. For these analyses, the alpha levels were adjusted to $a = .013$ to maintain a Type I Error rate of $a = .05$ across multiple comparisons.

Finally, analyses were conducted to assess the possibility that the subset of men who engage in sexual interactions with *fa'afafine* were indiscriminately responding to all of the target images. Such indiscriminate responding could artificially produce what appeared to be a bisexual pattern of sexual attraction. To assess this possibility, within-group paired sample *t*-tests were conducted to determine whether participants differed in their self-reported sexual attraction ratings and response latencies to the neutral images in comparison with the target images of men and the target images of women. For these analyses, alpha levels were set at $a = .013$ to maintain a Type I Error rate of $a = .05$ across multiple tests.

Results

Raw mean and standard deviation values for participants' self-reported sexual attraction ratings and viewing time response latencies are displayed in Table 2 by group.

Covariate Analysis

A one-way analysis of variance (ANOVA) indicated that age differed significantly as a function of group, Brown-Forsythe statistic, $F(3, 81.91) = 5.84$, $p = .001$. For *fa'afafine's* fellatrant partners, age correlated significantly with self-reported sexual attraction ratings of women, $r = -.384$, $p = .033$ and of men $r = .395$, $p = .028$. Consequently, age was included as a covariate in subsequent analysis of self-reported sexual attraction ratings, even though it was not significantly correlated with self-reported sexual attraction ratings for the other groups ($p = .051$ to $.996$). No significant correlations were found between age and response latencies for images of men or women ($p = .057$ to $.875$). Consequently, age was not included as a covariate in subsequent analysis of response latencies.

An independent chi-square test indicated weekly income (which was bifurcated to permit group comparisons) did differ significantly between groups, $\chi^2(6) = 13.54$, $p = .004$. Income did not correlate with any variable of interest so was not included as a covariate ($p = .195$ to $.947$). An independent chi-square test indicated religiosity did not differ significantly between groups, $\chi^2(6) = 2.91$, $p = .820$. There were insufficient numbers of participants in each relationship status category to compare groups.

Analyses of Self-Reported Sexual Attraction and Viewing Time Response Latencies

Standardized mean and standard deviation values, and inferential statistics for self-reported sexual attraction ratings are displayed in Table 3 by group. Standardized mean and standard deviation values, and inferential statistics for viewing time response latencies are displayed in Table 4 by group.

Comparisons of Discrepancies in Response to Images of Men and Women

Self-reported sexual attraction analysis. Group mean discrepancies in self-reported sexual attraction ratings are displayed in Figure 1. Lower scores indicated relatively greater gynephilic attraction. A one-way ANCOVA indicated no significant main effect of age. There was, however, a significant main effect of group. Contrast comparisons indicate, first, that the men who only engaged in sexual interactions with women exhibited mean discrepancies in self-reported sexual attraction scores that were significantly lower than those who were *fa'afafine's* fellatrant partners. Second, the men who were *fa'afafine's* fellatrant partners exhibited mean discrepancies in self-reported sexual attraction scores that were significantly lower than those who were *fa'afafine's* versatile fellatio partners. Third, the men who were *fa'afafine's* versatile fellatio partners exhibited mean discrepancies in self-reported sexual attraction scores that were significantly lower those of *fa'afafine*, themselves.

Table 2
Mean (± SD) Values for Participant Group's Self-Reported Sexual Attraction Ratings and Viewing Times (Measured in Milliseconds) for the Images of Men, Women, and Neutral Stimuli

	Fa'afafine $N = 21$		Men who were *fa'afafine's* fellatrant partners $N = 31$		Men who were *fa'afafine's* versatile fellatio partners $N = 31$		Men who were the versatile oral sexual partners of *fa'afafine* $N = 17$	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Self-reported sexual attraction ratings to images of:								
Women	1.21	.44	4.29	1.46	4.64	1.48	4.73	1.69
Men	5.36	1.43	1.12	.32	2.26	1.47	3.87	1.59
Neutral control	1.63	.92	1.48	.96	1.80	.99	2.53	1.73
Response latencies for images of:								
Women	5768.83	5250.89	11136.06	8593.53	10069.67	6747.20	14292.88	13763.31
Men	6901.61	4134.63	5438.68	4472.35	7254.61	5381.78	13459.36	12461.91
Neutral control	5225.02	4708.11	5617.95	4878.95	6949.26	7068.83	8989.59	7773.30

Table 3
Standardized Mean and Standard Deviation Values, and Inferential Statistics for Self-Reported Sexual Attraction Ratings by Group

Measure	1. Men who only engaged in sexual interactions with women $N = 31$		2. Men who were *fa'afafine's* fellatrant partners $N = 31$		3. Men who were *fa'afafine's* versatile fellatio partners $N = 17$		4. *Fa'afafine* $N = 21$	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Standardized self-reported sexual attraction ratings to images of:								
Women	1.00	.31	.86	.46	.47	.75	−.67	.20
Men	−.59	.25	−.30	.51	.04	.57	1.15	.29
Lesser-preferred gender[a]	−.62	.33	−.36	.33	−.27	.32	−.69	.29
Neutral control	−.41	.34	−.56	.29	−.51	.54	−.48	.33
Discrepancies response to images of men and women[a]	−1.63	.80	−1.11	.80	−.40	.78	1.79	.78
ANCOVA analysis for discrepancy scores:								
Main effect of age:			$F(1, 95) = 1.84$, $p = .178$, $\eta_p^2 = .02$					
Main effect of group:			$F(3, 95) = 88.77$, $p < .001$, $\eta_p^2 = .74$					
Contrast between groups:	1 and 2 $p = .014$ Cohen's $d = -.54$ 95% CI (−.93, −.11)		2 and 3 $p = .003$ Cohen's $d = -.91$ 95% CI (−1.17, −.24)				3 and 4 $p < .001$ Cohen's $d = -2.90$ 95% CI (−2.70, −1.67)	
ANCOVA analysis for response to lesser-preferred gender:								
Main effect of age			$F(1, 95) = 3.62$, $p = .060$, $\eta_p^2 = .04$					
Main effect of group			$F(3, 95) = 7.81$, $p < .001$, $\eta_p^2 = .20$					
Sample *t*-tests: (test value of 0)	1 $t(30) = -19.88$ $p < .001$ Cohen's $d = -7.26$		2 $t(30) = -6.95$ $p < .001$ Cohen's $d = -2.54$		3 $t(16) = -1.48$ $p = .158$ Cohen's $d = -.74$		4 $t(20) = 22.55$ $p < .001$ Cohen's $d = 10.08$	

[a] Scores have been adjusted for age.

Viewing time analysis. Group mean discrepancies in response latency scores are displayed in Figure 2. Lower scores indicated relatively greater gynephilic attraction. A one-way ANOVA indicated a significant main effect of group. Contrast comparisons indicated, first, that men who only engaged in sexual interactions with women exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by men who were *fa'afafine's* fellatrant partners. Second, men who were *fa'afafine's* fellatrant partners exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by men who were *fa'afafine's* versatile fellatio partners. Third, men who were *fa'afafine's* versatile fellatio partners exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by *fa'afafine*, themselves.

Comparisons in Response to Participants' Lesser-Preferred Gender

Self-reported sexual attraction analysis. Group mean self-reported sexual attraction ratings for participants' lesser-preferred gender are displayed in Figure 3. Higher scores indicated relatively elevated attraction to the lesser-preferred gender. A one-way ANCOVA indicated no significant main effect of age. There was, however, a significant main effect of group. Pairwise comparisons indicated that men who only engaged in sexual interactions with women did not differ significantly from *fa'afafine* ($p = .415$, Cohen's $d = .24$). Similarly, men who were *fa'afafine's* versatile fellatio partners did not differ significantly from those who were *fa'afafine's* fellatrant partners ($p = .387$, Cohen's $d = .26$). In contrast, both of the later groups scored significantly higher than men who only engaged in sexual activity with women (men who were *fa'afafine's* versatile fellatio partners: $p = .001$, Cohen's $d = 1.06$; men who were *fa'afafine's* fellatrant partners: $p = .003$, Cohen's $d = .79$), and *fa'afafine* (men who were *fa'afafine's* versatile fellatio partners: $p < .001$, Cohen's $d = 1.37$; men who were *fa'afafine's* fellatrant partners: $p = .001$, Cohen's $d = 1.08$).

Viewing time analysis. Group mean response latency scores for participants' lesser-preferred gender are displayed in Figure 4. Higher scores indicated relatively elevated attraction to the lesser-preferred gender. A one-way ANOVA indicated a significant main effect of group. Pairwise comparisons indicated men who only engaged in sexual interactions with women scored significantly lower than the other groups (men who were *fa'afafine's* fellatrant partners: $p = .045$, Cohen's $d = -.05$; men who were *fa'afafine's* versatile fellatio partners: $p < .001$, Cohen's $d = -1.14$; *fa'afafine*: $p = .005$, Cohen's $d = -.81$). Men who were *fa'afafine's* versatile fellatio partners scored significantly higher than men who were *fa'afafine's* fellatrant partners, $p = .013$, Cohen's $d = .72$, but did not differ significantly from *fa'afafine*,

Table 4
Standardized Mean and Standard Deviation Values, and Inferential Statistics for Viewing Time Response Latencies by Group

Measure	1. Men who only engaged in sexual interactions with women $N = 31$		2. Men who were *fa'afafine's* fellatrant partners $N = 31$		3. Men who were *fa'afafine's* versatile fellatio partners $N = 17$		4. *Fa'afafine* $N = 21$	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Standardized response latencies for images of:								
Women	.72	.29	.52	.41	.26	.40	−.10	.26
Men	−.38	.26	−.15	.36	.16	.42	.36	.47
Lesser-preferred gender	−.39	.25	−.26	.21	−.07	.30	−.19	.24
Neutral control	−.35	.28	−.37	.29	−.42	.46	−.26	.40
Discrepancies response to images of men and women	−1.10	.48	−.67	.72	−.10	.68	.46	.65
ANOVA analysis for discrepancy scores: Main effect of group:	$F(3, 96) = 28.59$, $p < .001$, $\eta_p^2 = .47$							
Contrast between groups:	1 and 2 $p = .008$ Cohen's $d = -.74$ 95% CI (−.75, −.12)		2 and 3 $p = .004$ Cohen's $d = -.81$ 95% CI (−.94, −.19)				3 and 4 $p = .008$ Cohen's $d = -.84$ 95% CI (−.97, −.15)	
ANOVA analysis for response to lesser-preferred gender: Main effect of group:	$F(3, 96) = 6.64$, $p < .001$, $\eta_p^2 = .17$							
Sample *t*-tests: (test value of 0)	1 $t(30) = -12.82$ $p < .001$ Cohen's $d = -4.68$		2 $t(30) = -5.18$ $p < .001$ Cohen's $d = -1.89$		3 $t(16) = -.63$ $p = .539$ Cohen's $d = -.31$		4 $t(20) = 3.24$ $p = .004$ Cohen's $d = 1.45$	

$p = .148$, Cohen's $d = .43$. The men who were *fa'afafine's* fellatrant partners did not differ significantly from *fa'afafine*, $p = .304$, Cohen's $d = -.32$.

Variation From Equal Response to Images of Men and Women

Self-reported sexual attraction analysis. Within-group one-sample *t*-tests pertaining to self-reported sexual attraction ratings were conducted to assess the extent to which the groups differed from a theoretically idealized pattern of equal sexual attraction the images of men and women (represented by a test value of 0). This analysis revealed that *fa'afafine* scored significantly higher than 0. Men who only engaged in sexual interactions with women and men who were *fa'afafine's* fellatrant partners both scored significantly lower than 0. Men who were *fa'afafine's* versatile fellatio partners did not differ significantly from 0.

Viewing time analysis. Within-group one-sample *t*-tests pertaining to viewing time response latencies were conducted to assess the extent to which the groups differed from a theoretically idealized pattern of equal sexual attraction the images of men and women (represented by a test value of 0). This analysis revealed that *fa'afafine* scored significantly higher than 0. Men who only engaged in sexual interactions with women and men who were *fa'afafine's* fellatrant partners both scored significantly lower than 0. Men who were *fa'afafine's* versatile fellatio partners did not differ significantly from 0.

Responses to the Target Images and Neutral Control Images

Inferential statistics pertaining to the paired sample *t*-test comparisons of the target images and neutral controls are presented in Table 5 by group.

Self-reported sexual attraction analysis. With respect to self-reported sexual attraction, the men who were *fa'afafine's* fellatrant partners did not differ significantly in their ratings of the images of men and the neutral images, given the adjusted alpha level (although the group differences trended toward significance in the expected direction). These men did, however, rate the images of women as significantly more attractive than the neutral images. The men who were *fa'afafine's* versatile fellatio partners did not differ significantly in their ratings of the images of men and the neutral images given the adjusted alpha level (although the group differences neared significance in the expected direction). These men did, however, rate the images of women as significantly more attractive than the neutral images.

Viewing time analysis. With respect to viewing time, the men who were *fa'afafine's* fellatrant partners did not differ significantly in their responses for images of men and the neutral images given the adjusted alpha level (although the group differences trended toward significance in the expected direction). These men did, however, exhibit response latencies that were significantly longer for images of women compared to neutral images. The men who were *fa'afafine's* versatile fellatio partners exhibited longer re-

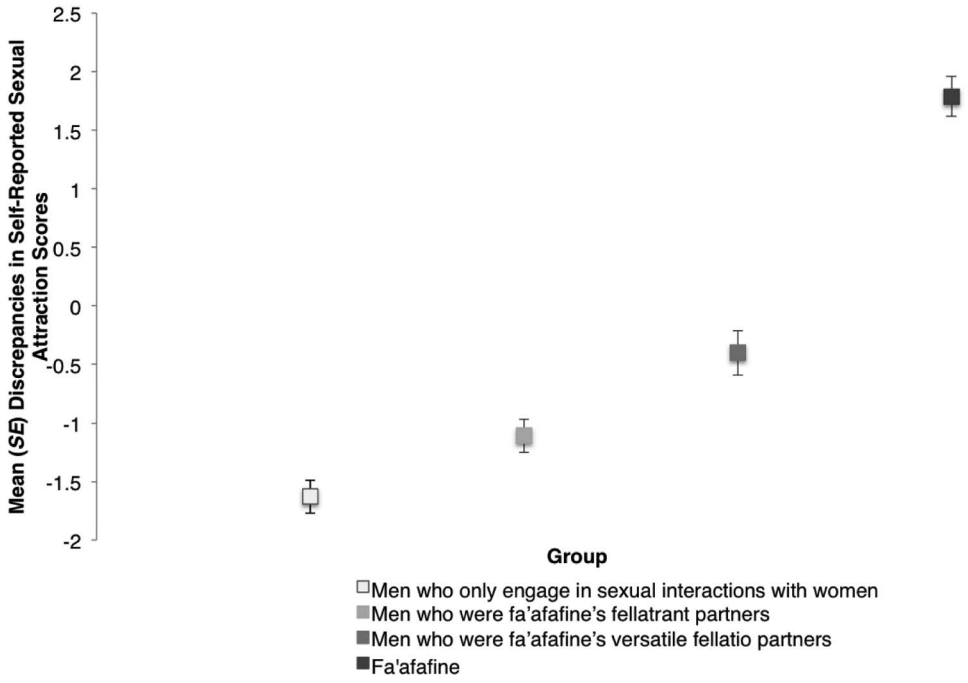

Figure 1. Mean discrepancies in self-reported sexual attraction to images of men versus images of women for *fa'afafine*, men who were the fellatrant partners of *fa'afafine*, men who were the versatile fellatio partners of *fa'afafine*, and men who only engaged in sexual interactions with women. Covariates appearing in the model are evaluated at the following value: Participant age = 26.80.

sponse latencies for images of both men and women compared with neutral images.

Discussion

Discrepancies in both self-reported sexual attraction and viewing time response latencies scores indicated that the control groups (i.e., [a] men who only engaged in sexual interactions with women and [b] *fa'afafine*) exhibited predominantly gynephilic and androphilic patterns of sexual attraction, respectively. In contrast, self-reported sexual attraction and viewing time measures indicate that both groups of masculine men who engaged in sexual interactions with *fa'afafine* exhibit (a) significantly more sexual attraction to women than do *fa'afafine,* and (b) significantly more sexual attraction to men then do masculine men who only engaged in sexual interactions with women. Consequently, on the basis of these measures and this sample, both groups of masculine men who engage in sexual interactions with *fa'afafine* could be described as exhibiting a relatively bisexual pattern of sexual attraction.

The masculine men who engaged in sexual interactions with *fa'afafine* did not exhibit perfectly equal attraction to men and women, but those who were *fa'afafine's* versatile fellatio partners came very close to doing so. In any case, it is important to note that bisexual attraction that is characterized in terms of perfectly equal attraction to men and women represents a theoretical ideal that is rarely found in the real world (Diamond, 1993). Both of our measures of sexual attraction indicated that, compared with the other groups examined, masculine men who both received *and* performed fellatio with *fa'afafine* sexual partners demonstrated relatively similar patterns of sexual attraction to images of men and women. Yet, both measures indicated that their sexual attraction to women was slightly greater, than to men. These results cannot be attributed to an indiscriminate response pattern on the part of these men given that their response times were prolonged for the images women, or both men and women, compared to the neutral controls. Furthermore, the self-reported sexual attraction ratings of these participants were higher for images women, or both men and women, relative to the neutral controls.

Analysis of self-reported sexual attraction to participants' lesser-preferred gender indicated that both groups of men who engaged in sexual interactions with *fa'afafine* were more attracted to their lesser-preferred gender than either men who only engage in sexual interactions with women or *fa'afafine,* themselves. Analysis of response latencies for participants' lesser-preferred gender indicated that both groups of men who engaged in sexual interactions with *fa'afafine* were more attracted to their lesser-preferred gender than men who only engaged in sexual interactions with women. However, this analysis indicated that both groups of men who engaged in sexual interactions with *fa'afafine* did not differ significantly from *fa'afafine* in this respect. We suspect that this later finding may reflect an artifact of the methodology employed and, as such, the more appropriate comparisons for this measure may be among the three groups of men, and not among those groups and *fa'afafine* (see Limitations).

In Western cultures, bisexual patterns of viewing times have been found among men who self-identify as bisexual, who report sexual attraction to both men and women, and a history of sexual activity

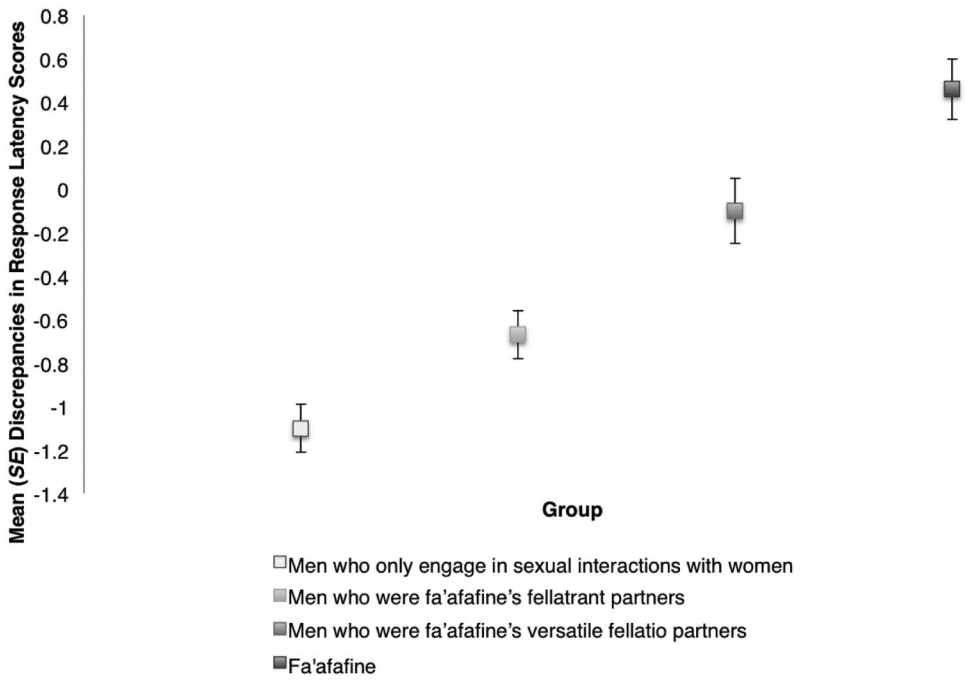

Figure 2. Mean discrepancies in viewing time response latencies for images of men versus images of women for *fa'afafine*, men who were the fellatrant partners of *fa'afafine*, men who were the versatile fellatio partners of *fa'afafine*, and men who only engaged in sexual interactions with women.

with both (Ebsworth & Lalumière, 2012; Lippa, 2013; Rieger & Savin-Williams, 2012). The bisexual patterns of viewing time documented among our participants were not contingent on the expression of a bisexual identity because this identity category is virtually nonexistent among Samoan men. Furthermore, the majority of men who engaged in sexual interactions with *fa'afafine* did not engage in sexual interactions with both men and women. Instead, they engaged in sexual interactions with women and *fa'afafine*, but not with men. This suggests that the manner in which bisexual patterns of attraction manifest behaviorally varies both within and between cultures. Moreover, it serves as a reminder that sexual attraction and sexual behavior do not necessarily covary in predictable ways.

Evolutionary theory predicts that most males will be sexually attracted to reproductively viable, opposite sex partners (Symons, 1995). In the absence of reproduction, evolution cannot occur. Consequently, the orienting mechanism underlying gynephilic orientation in males would have been under strong selection. It therefore stands to reason that most males, regardless of their cultural context, will exhibit a *sexual preference* for female sexual partners over males ones when given a choice. However, *sexual aversion* to same-sex sexual partners may be under less selection pressure provided that same-sex sexual activity does not interfere with reproduction. This is likely to be the case whenever males chose female sexual partners over same-sex ones. Because sexual aversion to same-sex sexual partners may be under less selection pressure than sexual preference for opposite sex sexual partners, the former may be far more susceptible to sociocultural influences than the latter. If so, then the threshold at which gynephilic men experience sexual aversion vis-à-vis males may fluctuate significantly depending on the sociocultural context in which they develop. This, in turn, may influence patterns of sexual attraction exhibited by men when presented with same-sex sexual partners. With these considerations in mind, we speculate that the presence of markedly feminine androphilic males in a local environment may promote bisexual patterns of male sexual attraction, as well as, behavioral expression of these attractions. This may occur, not because most men have a sexual preference for such partners, but rather, because male sexual aversion vis-à-vis such partners is relatively low, on average, when they develop in an environment in which feminine androphilic males are commonplace.

Extrapolating from this, it could be argued, first, that many Samoan men demonstrate sexual interest in males because *fa'afafine* are a salient and nonstigmatize part of the social environment in which Samoan men develop. Second, it is our impression, based on discussions with both Samoan men and *fa'afafine*, that many (if not most) sexual interactions between masculine men and their *fa'afafine* sexual partners are "one night stands." Because men often apply less stringent criteria when pursing short-term mating partners (Kenrick, Groth, Trost, Sadalla, 1993; Kenrick, Sadalla, Groth, Trost, 1990; Woodward & Richards, 2005), Samoan men (like men everywhere) may be willing to engage in sexual activities in such contexts with individuals who are not, strictly speaking, their ideal sex partners. Consequently, this psychological tendency may further potentiate sexual interest by Samoan men in *fa'afafine* when the former are seeking short-term sexual encounters. Third, although they are male, most *fa'afafine* are feminine in many respects and, as such, presumably possess at least some of the feminine characteristics that gynephilic men desire sexually. Finally, sexual activity with *fa'afafine* may be reinforced by positive sexual experiences, which in turn may influence patterns of sexual attraction. Taken together, these conditions may work in concert to promote the expression of male bisexual

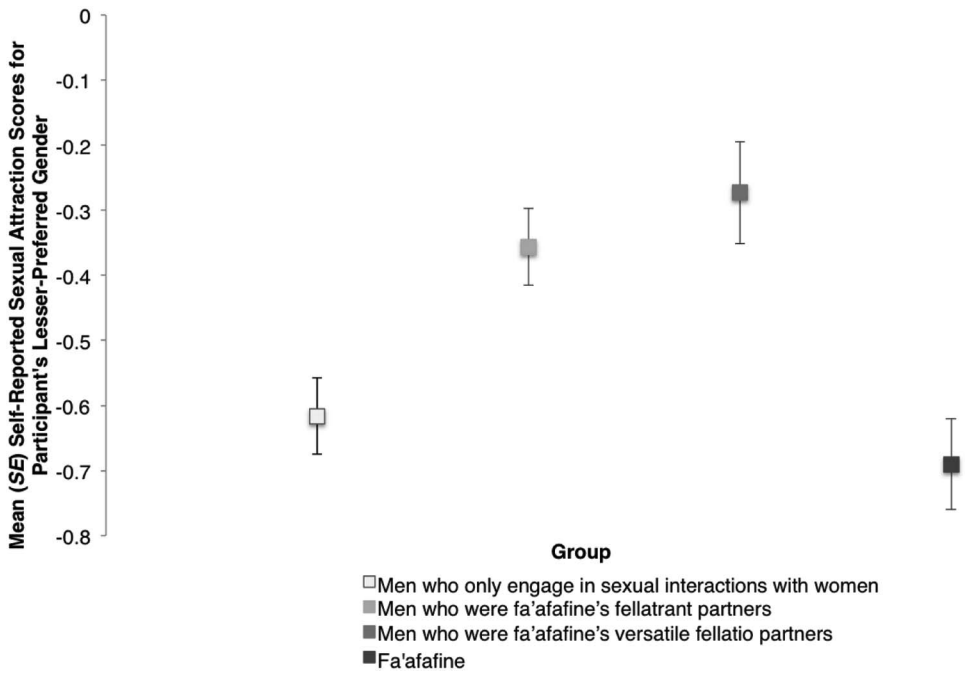

Figure 3. Mean discrepancies in self-reported sexual attraction to participants' lesser-preferred gender for *fa'afafine*, men who were the fellatrant partners of *fa'afafine*, men who were the versatile fellatio partners of *fa'afafine*, and men who only engaged in sexual interactions with women. Covariates appearing in the model are evaluated at the following value: Participant age = 26.80.

attraction and behavior in Samoa. To help identify whether such is the case, future research should focus on disentangling the relative contribution that sexual aversion and sexual attraction play in influencing the psychological and behavioral manifestation of male sexual orientation.

In sum, our results suggest that, in Samoa, male sexual orientation is graded along a continuum ranging from gynephilic to androphilic with various "bisexualities" in between. In doing so, this work joins the growing number of viewing time and experimental studies demonstrating that at least some men exhibit a bisexual pattern of sexual attraction and arousal (e.g., Ebsworth & Lalumière, 2012; Lippa, 2013; Rieger & Savin-Williams, 2012; Rosenthal et al., 2011; Rosenthal, Sylva, Safron, & Bailey, 2012). Large, carefully conducted studies carried out in Western cultures suggest that male bisexuality is relatively rare (Gates, 2011). As such, although proponents of the "compass model" of male sexual orientation might concede that male sexual orientation exists on a type of continuum, it seems likely that they would hasten to add that this continuum is overwhelmingly bimodal. The current study is noteworthy, in part, because it raises the possibility that male bisexual patterns of attraction may be much more common in other cultural context. Although the current study was not designed to provide an estimate of the frequency of male bisexuality in the Samoan population it is our strong impression, based on ease of recruitment, that men who engage in sexual interactions with *fa'afafine* are commonplace. Indeed, most participants, including men who only sleep with women, indicated that this was the case. As such, our results are more consistent with Kinsey and colleagues' (1948) assertion that male sexual orientation is continuous trait, than they are with Bailey's (2009) compass (dichotomous) model for male sexual orientation.

In general terms, the present study highlights the importance of conducting sexuality research in non-Western cultures so as to garner a more comprehensive understanding of how male sexual orientation is structured (for a more general discussion of the importance of conducting psychological research in non-Western cultures, see Henrich, Heine, & Norenzayan, 2010). In the absence of such information, our models for the development and evolution of male sexual orientation run the risk of being biased, incomplete, or even erroneous.

Group differences in familiarity with technology may have influenced the results of this study. *Fa'afafine* tend to move to the capital of Apia where they are overrepresented in the population in comparison with more rural environments. Individuals may have greater access to computers in the capital and, as such, *fa'afafine* may, on average, have been able to gain greater competency with computers compared to the other participant groups. This, in turn, may have biased *fa'afafine's* response patterns such that they completed the viewing time experiment more rapidly than the other participant groups. Indeed, *fa'afafine's* median response latency mean score (4108.47 ms) was lower than that of the other groups (5337.90 ms – 8136.37 ms). By completing the viewing time experiment more rapidly, *fa'afafine* would be afforded less opportunity to demonstrate longer response latencies to their most-preferred sex, compared to the other participant groups. Although the present methodology brought insight to the relative distribution of groups along a sexual continuum, future studies would benefit from employing measures of autonomic response that are uninfluenced by familiarity with technology.

The methodology employed during this study involved the presentation of the stimulus faces of men and women *individually*. As such, it was useful in assessing sexual attraction to men and women *in*

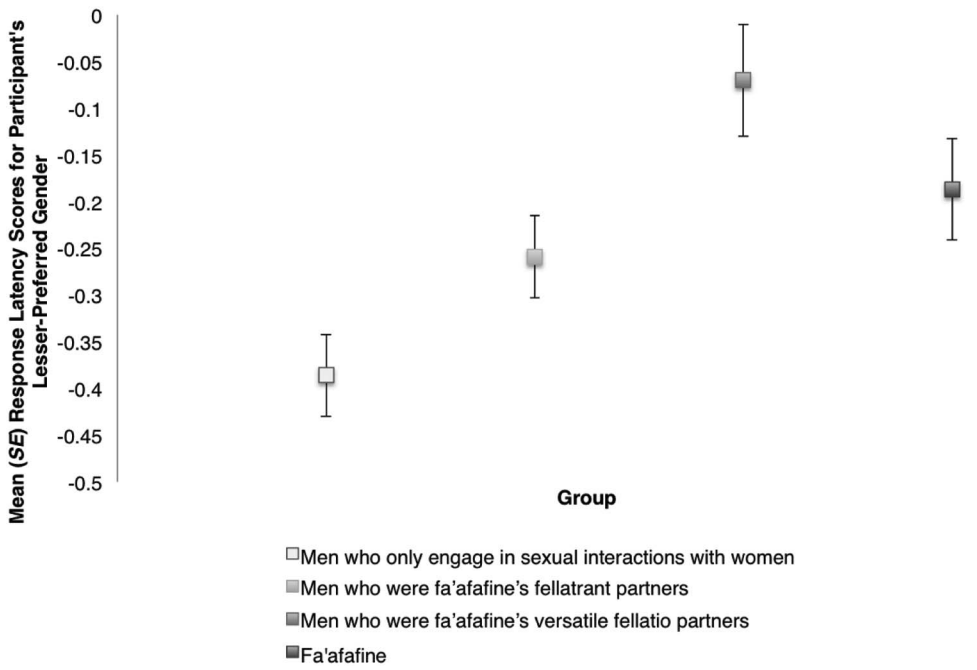

Figure 4. Mean discrepancies in viewing time response latencies for participants' lesser-preferred gender for *fa'afafine*, men who were the fellatrant partners of *fa'afafine*, men who were the versatile fellatio partners of *fa'afafine*, and men who only engage in sexual interactions with women.

isolation from each other. To determine whether most men who engage in sexual interactions with *fa'afafine* actually prefer women as sexual partners (as we suggest above), then it would be valuable to present paired stimuli of *fa'afafine* and women to participants using an eye-tracking paradigm. Such a paradigm allows for the experimenter to assess which, of two stimuli, a participant fixates on first and this has been linked to sexual preference (Fromberger et al., 2012).

The current study focused on examining whether our participants exhibited gynephilic, androphilic, or bisexual viewing time patterns utilizing transformed faces of men and women. However, the ways in which sexual orientation can be manifested are not limited to these three patterns. For example, given that *fa'afafine* represent a particular combination of masculine and feminine characteristics, it is possible that their masculine male sexual partners are *gynandromorphophilic* (i.e., sexually attracted to behaviorally and/or anatomically feminine males; Blanchard & Collins, 1993). Future research could ascertain whether this is indeed the case by measuring participants' attractiveness ratings and viewing times vis-à-vis nontransformed faces of men, women, and *fa'afafine.*

To our knowledge, this study represents one of the first viewing-time experiments pertaining to sexual orientation that has been conducted in a non-Western field setting. Although every effort was made to ensure that all participants were tested under similar conditions, confounds may have been introduced as a result of variation in testing conditions. This limitation is somewhat mitigated, however, because this factor was true across all groups.

Sexual orientation encompasses a number of different phenomenon that are conceptually and empirically distinguishable. These commonly include, but are not necessarily limited to, sexual orientation identity, sexual behavior, sexual attraction, and sexual arousal. The present research approached the study of sexual orientation in men who engage in sexual interactions with *fa'afafine* through a psychological lens and, in doing so, employed measures of self-report and viewing time to assess sexual attraction. Other measures or disciplinary approaches that assessed different aspects of sexual orientation

Table 5
Paired Sample t-Test Comparisons of the Target Images and Neutral Controls for the Groups of Men Who Engage in Sexual Interactions With Fa'afafine

Measure	Men who were *fa'afafine's* fellatrant partners	Men who were *fa'afafine's* versatile fellatio partners
Comparison of self-reported attraction to:		
Images of men and neutral controls	$t(30) = 2.04$, $p = .050$, Cohen's $d = .75$	$t(16) = 2.76$, $p = .014$, Cohen's $d = 1.38$
Images of women and neutral controls	$t(30) = 13.62$, $p < .001$, Cohen's $d = 4.97$	$t(16) = 3.45$, $p = .003$, Cohen's $d = 1.73$
Comparison of response latencies for:		
Images of men and neutral controls	$t(30) = 2.40$, $p = .023$, Cohen's $d = .88$	$t(16) = 3.08$, $p = .007$, Cohen's $d = 1.54$
Images of women and neutral controls	$t(30) = 8.08$, $p < .001$, Cohen's $d = 2.95$	$t(16) = 3.80$, $p = .002$, Cohen's $d = 1.90$

may yield additional insights. Future studies could investigate, for example, how patterns of sexual partner choice influence patterns of sexual attraction. Qualitative data on how men who engage in sexual interactions with *fa'afafine* perceive their sexuality could also be informative.

References

Asthana, S., & Oostvogels, R. (2001). The social construction of male 'homosexuality' in India: Implications for HIV transmission and prevention. *Social Science & Medicine, 52,* 707–721. http://dx.doi.org/10.1016/S0277-9536(00)00167-2

Bailey, J. M. (2009). What is sexual orientation and do women have one? In D. A. Hope, (Ed.), *Contemporary perspectives on lesbian, gay, and bisexual identities* (*Nebraska Symposium on Motivation,* pp. 43–64). New York, NY: Springer. http://dx.doi.org/10.1007/978-0-387-09556-1_3

Bailey, J. M., Rieger, G., & Rosenthal, A. M. (2011). Still in search of bisexual sexual arousal: Comment on Cerny and Janssen (2011). *Archives of Sexual Behavior, 40,* 1293–1295. http://dx.doi.org/10.1007/s10508-011-9778-5

Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan *fa'afafine*. *Archives of Sexual Behavior, 35,* 659–666. http://dx.doi.org/10.1007/s10508-006-9055-1

Benson, P. J., & Perrett, D. I. (1993). Extracting prototypical facial images from exemplars. *Perception, 22,* 257–262. http://dx.doi.org/10.1068/p220257

Blanchard, R., & Collins, P. I. (1993). Men with sexual interest in transvestites, transsexuals, and she-males. *Journal of Nervous and Mental Disease, 181,* 570–575. http://dx.doi.org/10.1097/00005053-199309000-00008

Chiñas, B. N. (1992). *The Isthmus Zapotecs: A matrifocal culture of Mexico*. Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.

Chivers, M. L., Rieger, G., Latty, E., & Bailey, J. M. (2004). A sex difference in the specificity of sexual arousal. *Psychological Science, 15,* 736–744. http://dx.doi.org/10.1111/j.0956-7976.2004.00750.x

Chivers, M. L., Seto, M. C., & Blanchard, R. (2007). Gender and sexual orientation differences in sexual response to sexual activities versus gender of actors in sexual films. *Journal of Personality and Social Psychology, 93,* 1108–1121. http://dx.doi.org/10.1037/0022-3514.93.6.1108

Collins, K. W. (1998). Bisexuality: A review of current research. *Family Therapy, 25,* 1–11.

Diamond, L. M. (2003). What does sexual orientation orient? A biobehavioral model distinguishing romantic love and sexual desire. *Psychological Review, 110,* 173–192.

Diamond, M. (1993). Homosexuality and bisexuality in different populations. *Archives of Sexual Behavior, 22,* 291–310. http://dx.doi.org/10.1007/BF01542119

Dodge, B., & Sandfort, T. G. M. (2007). A review of mental health research on bisexual individuals when compared to homosexual and heterosexual individuals. In B. A. Firestein (Ed.), *Becoming visible: Counseling bisexuals across the lifespan* (pp. 28–51). New York, NY: Columbia University Press.

Donham, D. L. (1990). *History, power, ideology: Central issues in Marxism and anthropology*. Cambridge, England: Cambridge University Press.

Ebsworth, M., & Lalumière, M. L. (2012). Viewing time as a measure of bisexual sexual interest. *Archives of Sexual Behavior, 41,* 161–172. http://dx.doi.org/10.1007/s10508-012-9923-9

Freund, K. (1963). A laboratory method for diagnosing predominance of homo- or hetero- erotic interest in the male. *Behaviour Research and Therapy, 1,* 85–93. http://dx.doi.org/10.1016/0005-7967(63)90012-3

Fromberger, P., Jordan, K., von Herder, J., Steinkrauss, H., Nemetschek, R., Stolpmann, G., & Müller, J. L. (2012). Initial orienting towards sexually relevant stimuli: Preliminary evidence from eye movement measures. *Archives of Sexual Behavior, 41,* 919–928. http://dx.doi.org/10.1007/s10508-011-9816-3

Gangestad, S. W., Bailey, J. M., & Martin, N. G. (2000). Taxometric analyses of sexual orientation and gender identity. *Journal of Personality and Social Psychology, 78,* 1109–1121. http://dx.doi.org/10.1037/0022-3514.78.6.1109

Gates, G. J. (2011). *How many people are lesbian, gay, bisexual and transgender?* Los Angeles, CA: UCLA, Williams Institute. Retrieved from escholarship.org/uc/item/09h684x2

Guittar, N. A. (2013). The queer apologetic: Explaining the use of bisexuality as a transitional identity. *Journal of Bisexuality, 13,* 166–190. http://dx.doi.org/10.1080/15299716.2013.781975

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33,* 61–83. http://dx.doi.org/10.1017/S0140525X0999152X

Herdt, G. (1994). *Third sex, third gender: Beyond sexual dimorphism in culture and history*. New York, NY: Zone Books.

Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior, 39,* 1275–1288. http://dx.doi.org/10.1007/s10508-009-9595-2

Imhoff, R., Schmidt, A. F., Weiβ, S., Young, A. W., & Banse, R. (2012). Vicarious viewing time: Prolonged response latencies for sexually attractive targets as a function of task- or stimulus-specific processing. *Archives of Sexual Behavior, 41,* 1389–1401. http://dx.doi.org/10.1007/s10508-011-9879-1

Israel, E., & Strassberg, D. S. (2009). Viewing time as an objective measure of sexual interest in heterosexual men and women. *Archives of Sexual Behavior, 38,* 551–558. http://dx.doi.org/10.1007/s10508-007-9246-4

Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology, 64,* 951–969. http://dx.doi.org/10.1037/0022-3514.64.6.951

Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model. *Journal of Personality, 58,* 97–116. http://dx.doi.org/10.1111/j.1467-6494.1990.tb00909.x

Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: W. B. Saunders Co.

Lauman, E. O., Gagnon, J. H., Michael, R. T., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States*. Chicago, IL: The University of Chicago Press.

LeVay, S. (2010). *Gay, straight and the reason why: The science of sexual orientation*. New York, NY: Oxford University Press.

Lippa, R. A. (2012). Effects of sex and sexual orientation on self-reported attraction and viewing times to images of men and women: Testing for category specificity. *Archives of Sexual Behavior, 41,* 149–160. http://dx.doi.org/10.1007/s10508-011-9898-y

Lippa, R. A. (2013). Men and women with bisexual identities show bisexual patterns of sexual attraction to male and female "swimsuit models." *Archives of Sexual Behavior, 42,* 187–196. http://dx.doi.org/10.1007/s10508-012-9981-z

Lippa, R. A., Patterson, T. M., & Marelich, W. D. (2010). Looking at and longing for male and female "swimsuit models": Men are much more category specific than women. *Social Psychological and Personality Science, 1,* 238–245. http://dx.doi.org/10.1177/1948550609359814

Little, A. C., & Hancock, P. J. B. (2002). The role of masculinity and distinctiveness in judgments of human male facial attractiveness. *British*

Journal of Psychology, 93, 451–464. http://dx.doi.org/10.1348/000712602761381349

Mageo, J. M. (1996). Samoa, on the Wilde side: Male transvestism, Oscar Wilde, and liminality in making gender. *Ethos, 24,* 588–627. http://dx.doi.org/10.1525/eth.1996.24.4.02a00020

Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.

Nanda, S. (1999). *Neither man nor woman: Hijras of India* (2nd ed.). Belmont, CA: Wadsworth Publishing Company.

Perrett, D. I., Lee, K. J., Penton-Voak, I., Rowland, D., Yoshikawa, S., Burt, D. M., . . . Akamatsu, S. (1998). Effects of sexual dimorphism on facial attractiveness. *Nature, 394,* 884–887. http://dx.doi.org/10.1038/29772

Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2015). Viewing time measures of sexual orientation in Samoan cisgender men who engage in sexual interactions with *fa'afafine*. *PLoS ONE, 10,* e0116529. http://dx.doi.org/10.1371/journal.pone.0116529

Quinsey, V. L., Ketsetzis, M., Earls, C., & Karamanoukian, A. (1996). Viewing time as a measure of sexual interest. *Ethology & Sociobiology, 17,* 341–354. http://dx.doi.org/10.1016/S0162-3095(96)00060-X

Ramanathan, S., Chakrapani, V., Ramakrishnan, L., Goswami, P., Yadav, D., Subramanian, T., . . . Paranjape, R. (2013). Consistent condom use with regular, paying, and casual male partners and associated factors among men who have sex with men in Tamil Nadu, India: Findings from an assessment of a large-scale HIV prevention program. *BMC Public Health, 13,* 827. http://dx.doi.org/10.1186/1471-2458-13-827

Rieger, G., Cash, B. M., Merrill, S. M., Jones-Rounds, J., Dharmavaram, S. M., & Savin-Williams, R. C. (2015). Sexual arousal: The correspondence of eyes and genitals. *Biological Psychology, 104,* 56–64. http://dx.doi.org/10.1016/j.biopsycho.2014.11.009

Rieger, G., Chivers, M. L., & Bailey, J. M. (2005). Sexual arousal patterns of bisexual men. *Psychological Science, 16,* 579–584. http://dx.doi.org/10.1111/j.1467-9280.2005.01578.x

Rieger, G., & Savin-Williams, R. C. (2012). The eyes have it: Sex and sexual orientation differences in pupil dilation patterns. *PLoS ONE, 7,* e40256. http://dx.doi.org/10.1371/journal.pone.0040256

Rosenthal, A. M., Sylva, D., Safron, A., & Bailey, J. M. (2011). Sexual arousal patterns of bisexual men revisited. *Biological Psychology, 88,* 112–115. http://dx.doi.org/10.1016/j.biopsycho.2011.06.015

Rosenthal, A. M., Sylva, D., Safron, A., & Bailey, J. M. (2012). The male bisexuality debate revisited: Some bisexual men have bisexual arousal patterns. *Archives of Sexual Behavior, 41,* 135–147. http://dx.doi.org/10.1007/s10508-011-9881-7

Rullo, J. E., Strassberg, D. S., & Israel, E. (2010). Category-specificity in sexual interest in gay men and lesbians. *Archives of Sexual Behavior, 39,* 874–879. http://dx.doi.org/10.1007/s10508-009-9497-3

Rust, P. C. R. (2002). Bisexuality: The state of the union. *Annual Review of Sex Research, 13,* 180–240.

Schmidt, J. (2003). Paradise lost? Social change and *fa'afafine* in Samoa. *Current Sociology, 51,* 417–432. http://dx.doi.org/10.1177/0011392103051003014/

Shore, B. (1981). Sexuality and gender in Samoa: Conceptions and missed conceptions. In S. B. Ortner & H. Whitehead (Eds.), *Sexual meanings: The cultural construction of gender and sexuality* (pp. 192–215). New York, NY: Cambridge University Press.

Stokes, J. P., Damon, W., & McKirnan, D. J. (1997). Predictors of movement toward homosexuality: A longitudinal study of bisexual men. *Journal of Sex Research, 34,* 304–312. http://dx.doi.org/10.1080/00224499709551896

Suschinsky, K. D., & Lalumière, M. L. (2011). Sexual arousal category-specificity and sexual concordance: The stability of sex differences in sexual arousal patterns. *Canadian Journal of Human Sexuality, 20,* 93–108.

Suschinsky, K. D., Lalumière, M. L., & Chivers, M. L. (2009). Sex differences in patterns of genital sexual arousal: Measurement artifacts or true phenomena? *Archives of Sexual Behavior, 38,* 559–573. http://dx.doi.org/10.1007/s10508-008-9339-8

Symons, D. (1995). Beauty is in the adaptations of the beholder: The evolutionary psychology of human female sexual attractiveness. In P. R. Abramson & S. D. Pinkerton (Eds.), *Sexual nature sexual culture* (pp. 80–118). Chicago, IL: The University of Chicago Press.

Tiddeman, B., Burt, M., & Perrett, D. (2001). Prototyping and transforming facial textures for perception research. *IEEE Computer Graphics and Applications, 21,* 42–50. http://dx.doi.org/10.1109/38.946630

Totman, R. (2003). *The third sex—kathoey: Thailand's ladyboys*. London, England: Souvenir Press.

Vasey, P. L., Pocock, D. S., & VanderLaan, D. P. (2007). Kin selection and male androphilia in Samoan *fa'afafine*. *Evolution and Human Behavior, 28,* 159–167. http://dx.doi.org/10.1016/j.evolhumbehav.2006.08.004

Vasey, P. L., & VanderLaan, D. P. (2014). Transgendered male androphilia in the human ancestral environment. In T. Shackelford & R. Hanson (Eds.), *The evolution of human sexuality* (pp. 185–206). New York, NY: Springer.

Weinberg, M. S., & Williams, C. J. (2010). Men sexually interested in transwomen (MSTW): Gendered embodiment and the construction of sexual desire. *Journal of Sex Research, 47,* 374–383. http://dx.doi.org/10.1080/00224490903050568

Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man, 12,* 304–319. http://dx.doi.org/10.2307/2800801

Williams, W. (1992). *The spirit and the flesh: Sexual diversity in American Indian culture*. Boston, MA: Beacon.

Woodward, K., & Richards, M. H. (2005). The parental investment model and minimum mate choice criteria in humans. *Behavioral Ecology, 16,* 57–61. http://dx.doi.org/10.1093/beheco/arh121

Zheng, L., Lippa, R. A., & Zheng, Y. (2011). Sex and sexual orientation differences in personality in China. *Archives of Sexual Behavior, 40,* 533–541. http://dx.doi.org/10.1007/s10508-010-9700-6

(*Appendix follows*)

Appendix

English Translation of the PostExperiment Questionnaire

1. Gender (circle one):		
Man	Woman	*Fa'afafine*
2. Age: _____		
3. Relationship status (check one)		
_____ Not in a relationship		
_____ In a casual relationship		
_____ In a committed relationship		
_____ Married		
_____ Divorced or widowed		
4. How religious are you? (circle one)		
1	2	3
Not religious	Somewhat religious	Very religious
5. How much do you earn in a week? (check one)		
_____ 0–99 tala		
_____ 100–199 tala		
_____ 200–299 tala		
_____ 300–399 tala		
_____ 400–499 tala		
_____ 500–599 tala		
_____ 600–699 tala		
_____ 700–799 tala		
_____ 800–899 tala		
_____Over 900 tala		
6. Throughout your whole life, you felt sexual desire for (circle all that apply)		
Man	Woman	*Fa'afafine*
7. Throughout your whole life, you have had sexual interactions with (circle all that apply)		
Man	Woman	*Fa'afafine*
8. Within the past year, you felt sexual desire for (circle all that apply)		
Man	Woman	*Fa'afafine*
9. Within the past year, you have had sexual interactions with (circle all that apply)		
Man	Woman	*Fa'afafine*
10. Have you preformed oral sex when with *fa'afafine* partners?[a]		
11. Have you received oral sex when with *fa'afafine* partners?[a]		

[a] Participants were asked this verbally. Only men who engaged in sexual interactions with *fa'afafine* were asked to respond to this. In doing so participants were able to provide additional details with their response, if necessary (e.g., one noted that he had only done so once before the age of 18).

Received July 28, 2015
Revision received December 10, 2015
Accepted December 10, 2015 ■