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

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Contrary to Kinsey and colleagues’ (Kinsey, 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 is overwhelmingly dichotomous, not continuous, in nature (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

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 than patterns of romantic attraction (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 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 koti of India (Ashtana & Oostvogels, 2001; Ramathan et al., 2013), xanith of Oman (Wikan, 1977), the Lakota winke of North America (Williams, 1992), the Zapotec muxe of Mexico (Chillas, 1992), the Maale ashitime 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 outfits—a puletasi—to work or formal events. During a tatalua (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 mali (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 than 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

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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 Samoan 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 Honorable 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, Kets dezis, Earls & Karamanoukian, 1996; Rieger, & Savin-Williams, 2012; Rullo, Strassberg, & Israel, 2010). 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, Weijl, 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,

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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.
were presented in a randomized order. As each image was dis-
10 target images of men's face, and 10 cartoon face images, which
transitioning from the trial to the actual experiment. The remaining
image. Participants' response to this first neutral image was de-
nine-trial images).

material. The experiment consisted of 31 images (excluding the

viewing-time software. Participants were
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-trrial images).

The first image in the actual experiment was a cartoon face
image. Participants' response to this first neutral image was de-
leted 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 dis-
played, 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 mea-
sured 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 experi-
mental 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).

Table 1

Description of Sexual Partners of “Men Who Engage in Sexual Interactions With Fa’afafine”
Throughout Participants’ Lifetime and Within the Prior Year

<table>
<thead>
<tr>
<th>Number of participants</th>
<th>Percent of sample category (%)</th>
<th>Gender category of individuals with whom participants have engaged sexually</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fellatrant partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throughout their lives:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 5)</td>
<td>16.1</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 26)</td>
<td>83.9</td>
<td>✓</td>
</tr>
<tr>
<td>Within the past year:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 1)</td>
<td>3.2</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 29)</td>
<td>93.5</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 1)</td>
<td>3.2</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Versatile fellatio partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throughout their lives:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 8)</td>
<td>47.1</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 7)</td>
<td>41.2</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 2)</td>
<td>11.8</td>
<td>✓</td>
</tr>
<tr>
<td>Within the past year:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 6)</td>
<td>35.3</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 9)</td>
<td>52.9</td>
<td>✓</td>
</tr>
<tr>
<td>(n = 2)</td>
<td>11.8</td>
<td>✓</td>
</tr>
</tbody>
</table>
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 fellatio partners, (b) men who were fa’afafine’s fellatio 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 α = .013 to maintain a Type I Error rate of α = .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 α = .013 to maintain a Type I Error rate of α = .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

<table>
<thead>
<tr>
<th>Measure</th>
<th>Fa’afafine</th>
<th>Men who were fa’afafine’s fellatrant partners</th>
<th>Men who were fa’afafine’s versatile fellatio partners</th>
<th>Men who were the versatile oral sexual partners of fa’afafine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N = 21 )</td>
<td>( N = 31 )</td>
<td>( N = 31 )</td>
<td>( N = 17 )</td>
</tr>
<tr>
<td>Self-reported sexual attraction ratings to images of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1.21 ± .44</td>
<td>4.29 ± 1.46</td>
<td>4.64 ± 1.48</td>
<td>4.73 ± 1.69</td>
</tr>
<tr>
<td>Men</td>
<td>5.36 ± 1.43</td>
<td>1.12 ± .32</td>
<td>2.26 ± 1.47</td>
<td>3.87 ± 1.59</td>
</tr>
<tr>
<td>Neutral control</td>
<td>1.63 ± .92</td>
<td>1.48 ± .96</td>
<td>1.80 ± .99</td>
<td>2.53 ± 1.73</td>
</tr>
<tr>
<td>Response latencies for images of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>5768.83 ± 5250.89</td>
<td>11136.06 ± 8593.53</td>
<td>10006.67 ± 6747.20</td>
<td>14292.88 ± 13763.31</td>
</tr>
<tr>
<td>Men</td>
<td>6901.61 ± 4134.63</td>
<td>5438.68 ± 4472.35</td>
<td>7254.61 ± 5381.78</td>
<td>13459.36 ± 12461.91</td>
</tr>
<tr>
<td>Neutral control</td>
<td>5225.02 ± 4708.11</td>
<td>5617.95 ± 4878.95</td>
<td>6949.26 ± 7068.83</td>
<td>8989.59 ± 7773.30</td>
</tr>
</tbody>
</table>
significantly lower than those exhibited by men who were versatile fellatio partners: 1.06; men who were faʻafafine’s fellatrant partners scored significantly higher than men who were faʻafafine’s fellatrant partners (p = .045, Cohen’s d = −.81). Men who were faʻafafine’s versatile fellatio partners scored significantly higher than men who were faʻafafine’s fellatrant partners, p = .013, Cohen’s d = .72, but did not differ significantly from faʻafafine, 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 faʻafafine (p = .415, Cohen’s d = .24). Similarly, men who were faʻafafine’s versatile fellatio partners did not differ significantly from those who were faʻafafine’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 faʻafafine’s versatile fellatio partners: p = .001, Cohen’s d = 1.06; men who were faʻafafine’s fellatrant partners: p = .003, Cohen’s d = .79), and faʻafafine (men who were faʻafafine’s versatile fellatio partners: p < .001, Cohen’s d = 1.37; men who were faʻafafine’s fellatrant partners: p = .001, Cohen’s d = 1.08).

Viewing time analysis. Group mean discrepancies in response latency scores were 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 faʻafafine’s fellatrant partners. Second, men who were faʻafafine’s fellatrant partners exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by men who were faʻafafine’s versatile fellatio partners. Third, men who were faʻafafine’s versatile fellatio partners exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by faʻafafine, themselves.

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

<table>
<thead>
<tr>
<th>Measure</th>
<th>1. Men who only engaged in sexual interactions with women</th>
<th>2. Men who were faʻafafine’s fellatrant partners</th>
<th>3. Men who were faʻafafine’s versatile fellatio partners</th>
<th>4. Faʻafafine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 31</td>
<td>N = 31</td>
<td>N = 17</td>
<td>N = 21</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Standardized self-reported sexual attraction ratings to images of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1.00</td>
<td>.31</td>
<td>.86</td>
<td>.46</td>
</tr>
<tr>
<td>Men</td>
<td>−.59</td>
<td>.25</td>
<td>−.30</td>
<td>.51</td>
</tr>
<tr>
<td>Lesser-preferred gender</td>
<td>−.62</td>
<td>.33</td>
<td>−.36</td>
<td>.33</td>
</tr>
<tr>
<td>Neutral control</td>
<td>−.41</td>
<td>.34</td>
<td>−.56</td>
<td>.29</td>
</tr>
<tr>
<td>Discrepancies response to images of men and women</td>
<td>−1.63</td>
<td>.80</td>
<td>−1.11</td>
<td>.80</td>
</tr>
<tr>
<td>ANCOVA analysis for discrepancy scores:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main effect of age:</td>
<td>F(1, 95) = 1.84, p = .178, η² = .02</td>
<td>F(1, 95) = 88.77, p &lt; .001, η² = .74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main effect of group:</td>
<td>1 and 2</td>
<td>p = .14</td>
<td>2 and 3</td>
<td>p = .003</td>
</tr>
<tr>
<td>Cohen’s d</td>
<td>−.54</td>
<td>95% CI (−.93, −.11)</td>
<td>Cohen’s d</td>
<td>−.91</td>
</tr>
<tr>
<td>ANCOVA analysis for response to lesser-preferred gender:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main effect of age:</td>
<td>F(1, 95) = 3.62, p = .060, η² = .04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main effect of group:</td>
<td>F(3, 95) = 7.81, p &lt; .001, η² = .20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample t-tests (test value of 0)

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(30)</td>
<td>−.99</td>
<td>−6.95</td>
<td>−1.48</td>
<td>2.25</td>
</tr>
<tr>
<td>p &lt; .001</td>
<td>&lt; .001</td>
<td>p &lt; .001</td>
<td>&lt; .001</td>
<td></td>
</tr>
<tr>
<td>Cohen’s d</td>
<td>−.726</td>
<td>−2.54</td>
<td>−.74</td>
<td>10.08</td>
</tr>
</tbody>
</table>

* Scores have been adjusted for age.
Table 4
Standardized Mean and Standard Deviation Values, and Inferential Statistics for Viewing Time Response Latencies by Group

<table>
<thead>
<tr>
<th>Measure</th>
<th>1. Men who only engaged in sexual interactions with women N = 31</th>
<th>2. Men who were fa'afafine’s fellatrant partners N = 31</th>
<th>3. Men who were fa'afafine’s versatile fellatio partners N = 17</th>
<th>4. Fa’afafine N = 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized response latencies for images of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>.72 .29</td>
<td>.52 .41</td>
<td>.26 .40</td>
<td>−.10 .26</td>
</tr>
<tr>
<td>Men</td>
<td>−.38 .26</td>
<td>−.15 .36</td>
<td>.16 .42</td>
<td>.36 .47</td>
</tr>
<tr>
<td>Neutral control</td>
<td>−.35 .28</td>
<td>−.37 .29</td>
<td>−.42 .46</td>
<td>−.26 .40</td>
</tr>
<tr>
<td>Discrepancies response to images of men and men</td>
<td>−1.10 .48</td>
<td>−.67 .72</td>
<td>−.10 .68</td>
<td>.46 .65</td>
</tr>
</tbody>
</table>

ANOVA analysis for discrepancy scores:
Main effect of group:

\[ F(3, 96) = 28.59, p < .001, \eta_p^2 = .47 \]

Contrast between groups:

<table>
<thead>
<tr>
<th>1 and 2</th>
<th>2 and 3</th>
<th>3 and 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p = .008 )</td>
<td>( p = .004 )</td>
<td>( p = .008 )</td>
</tr>
<tr>
<td>Cohen’s ( d = −.74 )</td>
<td>Cohen’s ( d = −.81 )</td>
<td>Cohen’s ( d = −.84 )</td>
</tr>
<tr>
<td>95% CI (−.75, −.12)</td>
<td>95% CI (−.94, −.19)</td>
<td>95% CI (−.97, −.15)</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>( n(30) = −12.82 )</td>
<td>( n(30) = −5.18 )</td>
<td>( n(16) = −.63 )</td>
<td>( n(20) = 3.24 )</td>
</tr>
<tr>
<td>( p &lt; .001 )</td>
<td>( p &lt; .001 )</td>
<td>( p = .539 )</td>
<td>( p = .004 )</td>
</tr>
<tr>
<td>Cohen’s ( d = −4.68 )</td>
<td>Cohen’s ( d = −1.89 )</td>
<td>Cohen’s ( d = −.31 )</td>
<td>Cohen’s ( d = 1.45 )</td>
</tr>
</tbody>
</table>

\( p = .148 \), 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 versatilefellatio 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 versatilefellatio 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 versatilefellatio 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.

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 versatilefellatio partners exhibited longer re-
response 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 than 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.
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 non-existent 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 male 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. Consequently, 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
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 contexts. 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...
isolation from each other. To determine whether most men who engage in sexual interactions with fa'aafine actually prefer women as sexual partners (as we suggest above), then it would be valuable to present paired stimuli of fa'aafine 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'aafine 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'aafine.

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'aafine 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'aafine

<table>
<thead>
<tr>
<th>Measure</th>
<th>Men who were fa'aafine’s fellatrant partners</th>
<th>Men who were fa’aafine’s versatile fellatio partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison of self-reported attraction to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Images of men and neutral controls</td>
<td>$t(30) = 2.04, p = .050, \text{Cohen’s } d = .75$</td>
<td>$t(16) = 2.76, p = .014, \text{Cohen’s } d = 1.38$</td>
</tr>
<tr>
<td>Images of women and neutral controls</td>
<td>$t(30) = 13.62, p &lt; .001, \text{Cohen’s } d = 4.97$</td>
<td>$t(16) = 3.45, p = .003, \text{Cohen’s } d = 1.73$</td>
</tr>
<tr>
<td>Comparison of response latencies for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Images of men and neutral controls</td>
<td>$t(30) = 2.40, p = .023, \text{Cohen’s } d = .88$</td>
<td>$t(16) = 3.08, p = .007, \text{Cohen’s } d = 1.54$</td>
</tr>
<tr>
<td>Images of women and neutral controls</td>
<td>$t(30) = 8.08, p &lt; .001, \text{Cohen’s } d = 2.95$</td>
<td>$t(16) = 3.80, p = .002, \text{Cohen’s } d = 1.90$</td>
</tr>
</tbody>
</table>
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


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


(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)
   - 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?*

11. Have you received oral sex when with Fa‘afafine partners?*

* 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).