



VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Health Disparities Among Common Subcultural Identities of Young Gay Men: Physical, Mental, and Sexual Health

This is the Accepted version of the following publication

Lyons, A and Hosking, Warwick (2014) Health Disparities Among Common Subcultural Identities of Young Gay Men: Physical, Mental, and Sexual Health. Archives of Sexual Behavior, 43 (8). 1621 - 1635. ISSN 0004-0002

The publisher's official version can be found at
<http://link.springer.com/article/10.1007/s10508-014-0315-1>
Note that access to this version may require subscription.

Downloaded from VU Research Repository <https://vuir.vu.edu.au/29903/>

Published in Archives of Sexual Behavior

<http://link.springer.com/article/10.1007/s10508-014-0315-1>

Health Disparities among Common Subcultural Identities of
Young Gay Men: Physical, Mental, and Sexual Health

Anthony Lyons^{1,3} and Warwick Hosking²

¹ Australian Research Centre in Sex, Health and Society, La Trobe University, Melbourne, Australia

² Psychology Discipline, College of Arts, Victoria University, Melbourne, Australia

³ Correspondence should be addressed to Anthony Lyons, Australian Research Centre in Sex, Health and Society, La Trobe University, 215 Franklin Street, Melbourne, Victoria, 3000, Australia; email: a.lyons@latrobe.edu.au

ABSTRACT

Researchers, policymakers, and health agencies have tended to treat gay men as a relatively homogeneous population, with little attention given to its many subcultural identities. In this study, we focused on young gay men and investigated a range of health-related differences according to common subcultural identities, such as Bear, Cub, and Twink. In a nationwide cross-sectional online survey of 1,034 Australian gay men aged 18-39 years, 44% reported a subcultural identity, the two most common being Cub (9%) and Twink (20%). Logistic and linear regression analyses compared Cub- and Twink-identified men and those without a subcultural identity (Non-identified) on a range of health-related outcomes. After adjusting for differences in age and body mass index (BMI), Twink-identified men had the highest risk profile overall, including significantly higher rates of smoking tobacco and alcohol consumption. They were also significantly more likely to report engaging in receptive anal sex. In addition, Cub-identified men were significantly more likely to report being in an ongoing relationship while Non-identified men were significantly less likely to report experiences of discrimination in the past 12 months. While there were differences on measures of mental health between the three groups, these were no longer significant after adjusting for age and BMI. In all, we found numerous health-related differences according to subcultural identity that warrant further investigation by researchers, health agencies, and anyone concerned with further understanding and addressing health-related challenges of gay men.

KEYWORDS: gay men; gay subculture; health disparities; Bears; Twinks

INTRODUCTION

Gay men are a priority population for a range of health interventions. Along with other men who have sex with men (MSM), this population faces multiple health-related challenges, including disproportionately high rates of HIV and sexually transmitted infections (STIs; Beyrer et al., 2012; Lyons, et al., 2012a, 2012b; The Kirby Institute, 2012; Wolitski & Fenton, 2011). Gay men also have higher rates of tobacco (Rivers, 2004) and illicit drug use (Rivers, 2001; Willoughby, Lai, Doty, Mackey, & Malik, 2008). Use of methamphetamine and other “party drugs” are especially prevalent (Gonzales, Mooney, & Rawson, 2010; Halkitis, Palamar, & Mukherjee, 2007; Lyons, Pitts, & Grierson, 2013b). In addition, rates of depression and anxiety are well above those of the heterosexual population (Chakraborty, McManus, Brugha, Bebbington, & King, 2011; Cochran, Sullivan, & Mays, 2003; King et al., 2008; Lyons, Pitts, & Grierson, 2012). However, the gay male population is far from homogeneous. In many countries, such as the U.S., Australia, and the U.K., there are distinct subcultural groups that have been largely overlooked in research on the health of gay men and only rarely taken into account in health interventions.

These subcultural groups are highly diverse. In general, physical characteristics and/or sexual interests distinguish many of these (Willoughby et al., 2008), with two particularly enduring and common groups known colloquially as Bears and Twinks. Men who identify as a Bear, or a Cub in the case of younger men, tend toward a larger body size and may also be somewhat hirsute (Moskowitz, Turrubiates, Lozano, & Hajek, 2013; Resnicow, Davis, & Zhang, 2009). These men tend to be active as a community (Kampf, 2000), with social groups, formal societies, and dedicated venues catering to this group since at least the 1980s (Manley, Levitt, & Mosher, 2007). As a subculture, many of these men have shared identities around embodying traditional forms of masculinity and resisting stereotypes of gay men as effeminate (Filiault & Drummond, 2007). With larger body mass

also being a core part of identity for these men, there is potential resistance to weight loss behaviors (Gough & Flanders, 2009), which may have a bearing on health-related outcomes. Twink-identified men on the other hand are typically lean, relatively young, and usually have shaved or naturally hairless bodies (Filiault & Drummond, 2007). They are arguably less organized as a social group than Bear- or Cub-identified men, but are nevertheless defined by commonly shared stereotypes as less traditionally masculine and more submissive. They also tend to be the most visible “type” on the gay scene, such as in gay bars and clubs (Filiault & Drummond, 2007), where drug use and engaging in risky sex can be relatively common (Halkitis & Parsons, 2002; Lea, Reynolds, & de Wit, 2013).

To our knowledge, only one study has reported on links between health and subcultural identity (Willoughby et al., 2008). Conducted in the U.S. with 340 gay men, the study identified at least 12 subcultural identities, including Bear and Twink, with differences found on drug use and having anal intercourse without a condom. While the study highlighted the importance of giving attention to health and subcultural identity, there were several limitations. First, the numbers of men with each identity were not reported. We therefore do not know how common some of the higher-risk identities were. Second, other important health-related behaviors and outcomes were not examined, such as the use of methamphetamine, numbers of sexual partners, mental health, and sexual health. Third, body mass was not taken into account. This is particularly important given that subcultural identities, such as Bear and Twink, are largely defined by body size, which may have separate health implications, such as obesity among Bear- or Cub-identified men.

It is also important to consider age. Some subcultural identities appear to be more common among older men, such as Bears, while others tend to be more common among younger men, such as Cubs and Twinks (Filiault & Drummond, 2007). The motivations behind choosing a subcultural identity might also be different for younger and older men.

Younger men, for example, are more likely to be in a process of sexual identity development, such as coming to terms with their sexual orientation, forming a sexual identity, and “coming out” to people around them (Groß, Bimbi, NaniN, & Parsons, 2006; Rosario, Schrimshaw, Hunter, & Braun, 2006). They are also encountering many first-time experiences involving sex and relationships. The subcultural identities of younger men might therefore have different functions in their lives to those of older men, with potentially different implications for health and sexual behavior. For this reason, there is value in conducting separate investigations of subcultural identities in younger and older men.

In this article, we present a detailed exploration of health-related differences among young gay-identified men with common subcultural identities, while also addressing some of the limitations mentioned above in relation to the study by Willoughby et al. (2008). We specifically focused on younger gay-identified men aged 18-39 years. Although it is possible that non-gay-identified MSM (e.g., bisexual, pansexual) also identify with subcultural groups, examining any health implications of the intersection between different sexual orientations and subcultural identities is likely to be complex and was felt to be beyond the scope of this study. For this study, we therefore focused only on gay-identified men. Data reported in this article came from a national cross-sectional survey that we conducted on the health and sexual lives of gay men. We had three main aims. The first was to report the numbers and percentages of men with specific subcultural identities. The second was to compare men with the most common identities, and also those without a subcultural identity, on a range of health-related behaviors and outcomes that are especially relevant to gay men, including those that relate to physical, mental, and sexual health. Because some identities are associated with age and body mass, a third aim was to examine whether having a particular subcultural identity predicted health-related behaviors and outcomes independently of age and body mass, as measured using the body mass index (BMI). In other words, we tested the

degree to which health-related differences were simply reducible to differences in age and BMI, particularly given that both age and body mass (e.g., obesity) have been linked to health outcomes (Brazier et al., 1992; Visscher & Seidell, 2001). Thus, if differences were not accounted for by age and BMI, then this would indicate that other factors might need to be considered.

METHOD

Participants

A total of 1,177 men completed the survey. There were 17 men aged over 39 years. This group was too small to consider as a separate age category and were excluded from analyses. Of those remaining, a further 126 men completed the survey but reported another sexual identity apart from gay or homosexual, including 38 heterosexual and 64 bisexual men. Due to relatively small numbers and to focus on gay-identified men, these men were also excluded. This left a final sample for analysis of 1,034 gay-identified men aged 18 to 39 years, with a mean age of 26.8 years ($SD=6.27$).

Procedure

The survey was conducted between July and September 2012. Recruitment specifically targeted gay men and involved notifications and advertisements sent to gay and lesbian organizations, word of mouth, and advertising on Facebook. In addition, advertisements were emailed to a large national database of MSM and men living with HIV. All advertisements referred men directly to the online survey where they were first informed that their responses would be anonymous and confidential. The men were only able to start the survey after indicating that they had understood this information. Completing the survey

took 23 minutes on average. Rewards or other incentives were not offered. The study received ethical approval from the La Trobe University Human Ethics Committee.

Measures

The survey was a subset of a larger survey that we conducted with the aim of obtaining a detailed picture on numerous aspects of the health, well-being, and sexual behavior of young Australian gay men (Lyons & Hosking, 2014). It included five categories of survey items:

Identity

Men were first asked for their sexual orientation (gay/homosexual, bisexual, heterosexual, or some other orientation). Subcultural identities were then assessed with a list of commonly known identities. The list was compiled following consultation with MSM health and support organizations, researchers working in the field of sexual health, and gay men and other MSM in our networks to identify identities judged to be relatively common among Australian gay men. The list comprised seven identities, including Bear, Cub, Wolf, Otter, Twink, Daddy, and Sex Pig, plus two additional options of “other” and “none”. Although Bear and Daddy identities are generally thought to be more common among older men, we initially included these because there is no current data on how prevalent they actually are among 18-39 year old Australian men. From the list, men were asked to choose one option that best represented their identity and to select “none” if they did not have a subcultural identity. Those who reported having some other subcultural identity were asked to specify the identity. Given that the list of identities was not exhaustive, the option for men to select “other”, and to specify the identity, enabled identification of any lesser known identities and any that may have become more common but were missed from the list.

Demographics

Items included age, pre-tax income (AUD\$0-\$19,999, \$20,000-\$49,999, \$50,000-\$99,999, and \$100,000+; a variable was computed to indicate an income of below \$50,000 vs. \$50,000 or more), education (secondary or below, non-university tertiary, undergraduate university degree, postgraduate university degree; a variable was computed to indicate either having or not having a university degree), employment (full-time, part-time/casual, not working; a variable was computed to indicate either being employed or not employed), country of birth (Australia or overseas), ethnic background (Anglo-Celtic, European non-Anglo-Celtic, Asian, other; a variable was computed to indicate either having or not having an Anglo-Celtic background), and area of residence (capital city, regional town, rural area; a variable was computed to indicate either living in a capital city or a regional/rural area).

Physical Health and Substance Use

Overall health was assessed with the EVGFP self-rated health scale (Shmueli, 1999). The EVGFP (which stands for Excellent, Very Good, Good, Fair, Poor health) is a single-item 5-point scale (1 = *poor*; 2 = *fair*; 3 = *good*; 4 = *very good*; 5 = *excellent*) and is commonly used as a brief and reliable indicator of overall physical health. Data on height and weight were also collected, from which BMI scores were computed. In addition, data were collected on health-related behaviors, including use of methamphetamine, cannabis, or other drugs, and whether men smoked tobacco and drank alcohol. For use of methamphetamine, cannabis, or other drugs, men indicated whether or not they had used the substance in the past 12 months. For smoking, they indicated whether they currently smoked tobacco, used to smoke tobacco but gave up, or had never smoked tobacco. A variable was computed to indicate whether or not men currently smoked tobacco. For alcohol, men indicated whether

they drank alcohol less often than once a week, three or fewer days per week, four or more days per week, or did not drink alcohol. A variable was computed to indicate whether or not they drank alcohol on one or more days a week. Those who reported drinking alcohol also gave the number of standard drinks they consumed on an average drinking day.

Mental Health and Stigma

Overall mental health was assessed using the 10-item K10 Psychological Distress Scale (Kessler et al., 2003), as a general indicator of the likelihood of experiencing depression and anxiety. We also examined self-esteem using the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1979). Further data were collected on treatment for depression or anxiety. Specifically, men indicated whether they were currently receiving treatment for depression or anxiety or both. Experiences related to stigma are closely linked with the mental health of gay men (Meyer, 2003). In addition to assessing mental health directly, we included five items for variables that tend to be stigma-related among gay men. The first asked about the most recent time in which men had experiences of discrimination that they attributed to their sexual orientation (never, in the past 12 months, more than 12 months ago; a variable was computed to indicate whether or not experiences of discrimination had occurred in the past 12 months). The second item asked how many people in their social networks knew of their sexual orientation (nobody, almost nobody, less than half, more than half, almost everybody, everybody; a variable was computed to indicate whether nobody/almost nobody knew of their sexual orientation). Two subsequent items related to feeling stigmatized. The first assessed the degree to which men were experiencing internalized stigma (Newcomb & Mustanski, 2010), such as believing that homosexuality is wrong. The second assessed the degree to which they felt positively, or affirmed, about their sexual orientation. Both variables were measured using the Internalized Homonegativity and

Affirmation subscales from the Lesbian, Gay, and Bisexual Identity Scale (Mohr & Kendra, 2011). A final item asked about the extent to which men felt connected with the gay community using a 4-item scale from “none” to “a lot”. This item was included, as community ties may be used to manage the effects of stigma, and previous studies have shown links between connections felt with the gay community and mental health (e.g., Lyons, Pitts, & Grierson, 2013a).

Sexual Health and Behavior

Men first reported whether they were in a regular ongoing relationship. Those who were in a relationship were then asked whether they had agreed to a monogamous or open relationship (agreed to monogamy, agreed to open, or had no agreement either way; a variable was computed to indicate whether or not men had agreed to a non-monogamous relationship). Following these questions, men reported on the number of sexual partners they had during the past 12 months and, with regard to their most recent sexual encounter, whether they had sex with a casual or regular ongoing partner and whether they had anal intercourse. Those who reported having had anal intercourse were asked about the role they took (insertive, receptive, or both; a variable was computed to indicate whether or not they had receptive anal intercourse) and whether they had used a condom. For those who reported having had sex with a casual partner, a further variable was computed to indicate whether they had anal intercourse without using a condom with that casual partner, as a common measure of HIV/STI risk. Sexual health items included HIV testing (ever tested or never tested) and STI testing (tested in the past 12 months, tested more than 12 months ago, never tested; a variable was computed to indicate whether men had been tested in the past 12 months). Those who reported ever having been tested for HIV were asked for their HIV status (positive, negative, don't know; a variable was computed to indicate whether men

reported having been diagnosed with HIV). Those who reported having been tested for an STI in the past 12 months were asked about the result of their most recent test. For this item, they were given a list of STIs (genital herpes, candida or thrush, chlamydia, genital warts, gonorrhea, pubic lice or crabs, syphilis, non-specific urethritis, or some other STI) and were asked to indicate any STI they had been diagnosed with or to indicate that they had not been diagnosed with an STI. A variable was computed to indicate whether or not men had been diagnosed with an STI in the past 12 months.

Analysis

We first computed numbers and percentages of men who reported each subcultural identity. Those with the most common identities, including men who reported not having a subcultural identity, were then compared across demographics. Bivariate comparisons between these groups were first conducted using logistic regressions for categorical predictor variables and linear regressions for continuous predictor variables. To identify significant independent predictors, multivariable logistic or linear regressions were conducted on demographic variables that differed across the groups at $p < .20$. Regressions were conducted for each of these demographic variables while adjusting for other demographic variables that differed across the groups at $p < .20$. Comparisons were then made between the groups on variables related to physical health and substance use, mental health and stigma, and sexual health and behavior. Again, bivariate logistic or linear regressions were first conducted. To test for differences after taking into account age and body mass, these analyses were repeated using multivariable logistic or linear regressions that adjusted for age and then repeated a second time using multivariable regressions that adjusted for both age and BMI. For each predictor variable, differences between identities were assessed using standardized beta coefficients for continuous predictors and odds ratios for categorical predictors. Wald tests

assessed the overall effect of each predictor variable. Analyses were conducted using Stata 11.1.

RESULTS

Identity

Of the 1,034 men in the final sample for analysis, 458 (44%) reported a subcultural identity. Two relatively common groups included 206 (20%) men who identified as Twink and 92 (9%) who identified as Cub. For the other subcultural identities, there were 31 (3%) who identified as Bear, 8 (1%) as Wolf, 38 (4%) as Otter, 10 (1%) as Daddy, and 12 (1%) as Sex Pig. There were 61 (6%) men who indicated some other subcultural identity that was not listed. These men reported a large diversity of identities, such as Femme, Gaymer, Boi, and Chub. Of all these, Chub was the most common but only comprised 4% of those who reported some other identity. A further 572 (56%) reported not having a subcultural identity (hereafter referred to as *Non-identified*) and four men did not report whether or not they had a subcultural identity (i.e., did not answer the question). Of the above groups, only Twink-, Cub-, and Non-identified men were of sufficient numbers for making detailed group-based comparisons across demographics, physical health and substance use, mental health and stigma, and sexual health and behavior. All further analyses therefore focused on these three groups, which collectively comprised 84% of the sample.

Demographics According to Subcultural Identity

Table 1 compares Twink-, Cub-, and Non-identified men on demographics. Twink-identified men were significantly younger than the other two groups, $F(2, 867) = 51.00, p < .001$. They were also less likely to report a university education, $\chi^2_2 = 12.65, p = .002$, to be employed, $\chi^2_2 = 16.52, p < .001$, and to earn an annual pre-tax income of \$50,000 or more,

$\chi^2_2 = 24.26, p < .001$. However, following adjustments for all other demographic variables that differed between the groups at $p < .20$, education, employment, and income were no longer significantly different between the three groups. Only age remained significantly different, $F(2, 807) = 34.49, p < .001$.

[Insert Table 1 here]

Physical Health and Substance Use According to Subcultural Identity

Table 2 compares the three groups on variables related to physical health and substance use. As expected, BMI scores differed significantly between the groups in both the unadjusted analyses, $F(2, 848) = 70.87, p < .001$, and those adjusted for age, $F(2, 847) = 49.18, p < .001$, with Twink-identified men reporting the lowest scores and Cub-identified men the highest. 0

[Insert Table 2 here]

For other physical health-related variables, significant differences were found between the three groups for self-rated health, smoking, cannabis use, and alcohol consumption. Cub-identified men had the lowest overall self-rated health of the two groups, with similar ratings between Twink- and Non-identified men, $F(2, 808) = 5.84, p = .003$. These differences remained significant after adjusting for age, $F(2, 807) = 6.63, p = .001$, but were no longer significant after adjusting for both age and BMI, $F(2, 791) = .52, p = .59$. Reported rates of tobacco smoking were significantly higher among Twink-identified men than Cub- and Non-identified men, $\chi^2_2 = 7.98, p = .02$. These differences remained significant after adjusting for age, $\chi^2_2 = 16.33, p < .001$, and age and BMI, $\chi^2_2 = 15.01, p < .001$. While reported cannabis

use was not significantly different between Twink- and Cub-identified men, rates for Twink-identified men were significantly higher than for Non-identified men, $\chi^2_2 = 10.85, p = .004$, with differences again remaining significant after adjusting for age, $\chi^2_2 = 9.59, p = .008$, and age and BMI, $\chi^2_2 = 7.70, p = .02$. Among those who reported drinking alcohol at least once a week, Twink-identified men reported a significantly greater average number of standard alcoholic drinks on a drinking day than Cub- and Non-identified men, but only after adjusting for age and BMI, $F(2, 344) = 3.37, p = .04$. As displayed in Table 2, Cub-identified and Non-identified men reported similar numbers of drinks.

Mental Health and Stigma-related Variables According to Subcultural Identity

Table 3 compares the three groups on variables related to mental health and stigma. Significant differences were found between the groups for psychological distress, self-esteem, feeling positively toward their sexual orientation, feeling connected with the gay community, and experiences of discrimination. Mean scores for distress were significantly higher among Twink-identified men than the other two groups, $F(2, 836) = 4.00, p = .02$. However, these differences were no longer significant after adjusting for either age or for age and BMI. Mean scores for self-esteem were not significantly different between Cub-identified and Twink-identified men, but these scores were both significantly lower than those for Non-identified men, $F(2, 834) = 4.17, p = .02$. While these differences remained significant after adjusting for age, $F(2, 833) = 3.37, p = .03$, they were no longer significant after adjusting for age and BMI.

[Insert Table 3 here]

Twink-identified men reported feeling the most positively toward their sexual orientation. While this was not significantly different from Cub-identified men, it was significantly greater than Non-identified men, $F(2, 845) = 4.13, p = .02$, including after adjusting for age, $F(2, 844) = 4.91, p = .008$, and age and BMI, $F(2, 825) = 4.50, p = .01$. Likewise, Twink-identified men reported feeling most connected with the gay community. Again, this was not significantly different from Cub-identified men, but it was significantly greater than Non-identified men, $F(2, 863) = 4.36, p = .01$, including after adjusting for age, $F(2, 862) = 4.88, p = .008$, and age and BMI, $F(2, 842) = 3.46, p = .03$. Finally, Cub-identified men were the most likely group to report experiences of discrimination, with 56% reporting at least one experience in the past 12 months. While this rate was not significantly different from Twink-identified men (52%), it was significantly greater than Non-identified men (42%), $\chi^2_2 = 10.54, p = .005$, including after adjusting for age, $\chi^2_2 = 8.36, p = .01$, and age and BMI, $\chi^2_2 = 7.96, p = .02$.

Sexual Health and Behavior According to Subcultural Identity

Table 4 compares the three groups on sexual health and behavior. Significant differences were found between the groups for numbers of sexual partners, whether they were in an ongoing relationship and whether they had receptive anal sex at their most recent sexual encounter. Differences were also found for HIV/STI testing patterns. Non-identified men reported fewer numbers of sexual partners in the past 12 months, with no differences between Twink- and Cub-identified men, $F(2, 866) = 3.70, p = .02$. However, differences were no longer significant after adjusting for age or after adjusting for age and BMI. Cub-identified men were significantly more likely to report being in an ongoing relationship compared to Non-identified men, but the overall effect of this variable was only significant

after adjusting for age and BMI, $\chi^2_2 = 7.32, p = .03$. There were no significant differences between Cub- and Twink-identified men for this variable.

[Insert Table 4 here]

With regard to their most recent sexual encounter, Twink-identified men were the most likely to report having engaged in receptive anal sex, $\chi^2_2 = 9.54, p = .008$. These differences remained significant after adjusting for age, $\chi^2_2 = 6.57, p = .04$, and age and BMI, $\chi^2_2 = 7.11, p = .03$. With regard to sexual health testing, there were no significant differences between Twink- and Cub-identified men, but Non-identified men were significantly less likely to report receiving an STI test in the past 12 months, $\chi^2_2 = 9.17, p = .01$. These differences remained significant after adjusting for age, $\chi^2_2 = 11.90, p = .003$, and age and BMI, $\chi^2_2 = 8.81, p = .01$. Although Twink-identified men were less likely than either Cub- or Non-identified men to report ever having been tested for HIV, $\chi^2_2 = 8.66, p = .01$, this difference was no longer significant after adjusting for age and BMI.

DISCUSSION

In this study, a little less than half of gay men aged 18-39 years reported a subcultural identity, the most common being Twink and Cub. Many gay subcultural identities are age-related, so it is worth noting that these findings are specific to men aged 18-39 years. Older men, for example, may report different identities in greater numbers, such as Daddy and Bear. It is also worth noting that a range of other identities was reported in our study, such as Wolf, Sex Pig, and Chub. While these were not nearly as common as Twink and Cub, there nevertheless appears to be a large diversity of subcultural groupings among gay men. The study of American gay men by Willoughby et al. (2008) is the only other reported study we

know of that examined the prevalence of subcultural identities in a large sample of gay men, which likewise found a large diversity of identities.

Greater attention may need to be given to the role of subcultural identities in health outcomes. In our study, a comparison between Cub-, Twink-, and Non-identified men revealed numerous differences related to health and sexual behavior. In short, Twink-identified men had the highest risk profile and Non-identified men the lowest. Twink-identified men were significantly more likely than both Cub- and Non-identified men to report smoking tobacco and to engage in receptive anal sex, and less likely to report ever testing for HIV. After adjusting for age and BMI, they also reported greater alcohol consumption. Cub-identified men tended to rate their physical health lower than both Twink- and Non-identified men and, after adjusting for age and BMI, were significantly more likely than Non-identified men to report being in an ongoing relationship. On all other measures, there were no significant differences between Cub- and Twink-identified men. In contrast, Non-identified men reported significantly lower psychological distress, lower rates of cannabis use, fewer experiences of discrimination, lower numbers of sexual partners in the past 12 months, and lower rates of STI testing. They also reported significantly higher self-esteem, but were a little less likely to feel positively toward their sexual orientation or to feel connected with the gay community.

A few of the above differences were attributable to differences in age or BMI, with Twink-identified men being the youngest of the three groups and Cub-identified men having the highest BMI. Lower psychological distress and fewer sexual partners among Non-identified men were accounted for by older age and a lower rate of HIV testing among Twink-identified men was accounted for by younger age. Mental health problems are known to be more common among younger than older people in general (Australian Bureau of Statistics, 2007), including among younger gay men (Leonard et al., 2012). In addition,

younger gay men may be especially active on the “gay scene” (Lea et al., 2013) where the opportunity is relatively high for casual sex encounters and therefore larger numbers of partners. Becoming sexually active more recently than older men may be at least one explanation for overall lower reported rates of ever testing for HIV. Lower self-rated physical health among Cub-identified men and higher self-esteem among Non-identified men were both accounted for by BMI. These findings are not surprising. Previous studies have found BMI closely linked with self-esteem, especially in societies with cultural preferences for thinness (Miller & Downey, 1999). In addition to higher BMI being linked to poorer self-esteem, it also has well established links with poorer health (Visscher & Seidell, 2001).

In all, many differences between the three groups were independent of or in addition to differences in age and BMI, including smoking tobacco, using cannabis, connections felt with the gay community, feelings toward one’s sexual orientation, experiences of discrimination, relationship status, receptive anal sex, and STI testing. Other factors beyond age and BMI are therefore likely to explain differences in these variables. Unfortunately, the current literature offers few clues; considerable in-depth research is needed to understand health and other differences between subcultural identities. However, one of the largest differences between Cubs and Twinks is in the way these groups engage with the gay community and its subcommunities. Many Cub-identified men take active roles in the Bear community, with Cubs being one of several “Bear” identities, largely restricted to younger men (Manley et al., 2007). It may be possible that within these communities, specific subcultural norms and values have emerged around drug-taking and relationship patterns.

Twink-identified men tend to be less organized as a group than Cub-identified men. We can only speculate for now, but the “gay scene” is known to favor slim, youthful-looking men (Filiault & Drummond, 2007). Thus, if Twink-identified men are more likely to participate in the gay scene, such as visiting gay bars and clubs, this may involve exposure to

drugs and sex partying (Lea et al., 2013; Mustanski, Newcomb, Du Bois, Garcia, & Grov, 2011), which might explain why some higher-risk behaviors were more common in this group. In addition, for some men, engaging in receptive anal intercourse may be an expression of submissiveness. With the Twink identity tending to be associated with submissiveness, this might explain why this group was generally more likely to engage in receptive anal intercourse. Being more likely than Non-identified men to report having an STI test might also suggest that many Twink-identified men are using testing as a risk management strategy.

Interestingly, Non-identified men were significantly less likely to report experiences of discrimination. In fact, more than half of Cub- and Twink-identified men reported discrimination in the past 12 months compared with two-fifths of Non-identified men. There may be several reasons for these patterns. Some men who report discrimination might seek subcultural communities as a way to gain greater support. Being a more organized community, this may be particularly the case for Cub-identified men. It is also possible that more of the Non-identified men are in earlier stages of coming to terms with their sexuality and may therefore be more likely to conceal their sexual orientation in public (Quinn & Earnshaw, 2011). This might also explain why this group felt less positively overall about their sexual orientation and less connected with the gay community. In a similar vein, some men who actively disclose their sexual orientation in public may be drawn to subcultural identities as new ways of expressing their sexuality. Any of these scenarios could result in comparatively fewer experiences of discrimination for Non-identified men, but require testing in future research. Other possible explanations may also be found, particularly in any research that seeks to understand how men with different subcultural identities experience and respond to stigma and discrimination.

This study is among the first to examine health-related differences between subcultural identities of gay men. As mentioned earlier, we know of only one other study, conducted in the U.S. (Willoughby et al., 2008). In that study, comparisons were made between subcultural identities on drug use and having anal intercourse without a condom. Relative to other subcultural identities, Twink-identified men were less likely to be smokers and to have used cannabis, and were no more likely to have engaged in anal intercourse without a condom. While at first glance, some of these findings appear to be opposite to those in our study, the U.S. study used different comparison groups. Neither Cub-identified nor Non-identified men were included in the study, despite Cub-identified men existing as a subcultural group in the U.S. (Manley et al., 2007). Moreover, percentages of Twink-identified men were not reported for drug use or for sexual behavior, thus making it impossible to directly compare each study and to therefore determine any similarities or differences in health-related patterns between Australian and American Twink-identified men. Despite these shortcomings, the U.S. study nevertheless showed substantial health-related differences between subcultural identities. Combined with the findings from our study, there is now firm evidence pointing to potentially important links between identity and health in gay male populations.

The subcultural identities of gay men have tended to receive little attention in public health initiatives. However, the findings of this study suggest that links between identity and health deserve greater focus, at least among young gay men. For example, education campaigns and support strategies might feasibly target particular identities that are relatively common among young gay men, such as Twink-identified men. In other populations, studies show that tailoring health interventions to subcultural and other specific identities, such as the subcultural identities of African Americans (Resnicow et al., 2009), can be more effective at capturing attention and leading to behavior change (Barrera, Castro, & Steiker, 2011;

Barrera, Castro, Strycker, & Toobert, 2013). Where resources are limited, targeting higher-risk subgroups may also improve cost-effectiveness. Since the arrival of HIV, government and other health agencies around the world have implemented numerous interventions aimed at improving the health of gay men and other MSM. Certainly, there has been considerable success in the promotion of safer sex (Herbst et al., 2005). However, the fact remains that many gay men continue to engage in higher-risk sexual behavior. Other higher-risk health-related behaviors, such as drug use, likewise remain common and rates of mental health problems are still high. Reaching gay men in new or different ways may be needed, such as tailoring health messages to appeal to young gay men with specific subcultural identities or targeting messages to venues that are known to attract particular subcultural groups. To this end, a focus on further understanding links between subcultural identities and health, including among older men, with targeted programs toward higher-risk identities may offer new and potentially promising avenues.

It is worth noting that findings from this study are limited to gay-identified men. Although subcultural identities such as Twink and Cub are commonly thought to be identities belonging to gay men, they may be found in other MSM populations, such as bisexual men. Our study was targeted to gay-identified men. Although some other men found and completed the survey, we did not have large enough numbers of non-gay MSM, such as bisexual or pansexual men, to reliably examine the prevalence of subcultural identities in these populations. However, it is worth noting that some of these men reported a subcultural identity, including 18 bisexual men who identified as Twink and one as Cub. In future, researchers may wish to consider conducting studies that focus on non-gay MSM to test whether our findings generalize to these groups. One reason for examining these groups separately from gay men is that some may have different health outcomes. Bisexual men, for example, are known to have a range of different health-related outcomes to gay men

(Fredriksen-Goldsen, Emler, et al., 2013; Fredriksen-Goldsen, Kim, Barkan, Muraco, & Hoy-Ellis, 2013), including differences in sexual behavior and HIV/STI testing (Lyons, et al., 2012b). Given these differences, it may be worth examining, for example, whether bisexual Cubs have similar health outcomes to gay Cubs. Potential interactions between subcultural identities and sexual identities, such as bisexual or pansexual, may be complex but could be investigated in studies that purposively recruit a large diversity of non-gay MSM.

In addition to being restricted to gay-identified men, findings from this study are further limited to those aged 18-39 years. We assessed a range of commonly known subcultural identities in our sample, but some identities are thought to be more common in older age groups. In particular, men who identify as Bear or Daddy are typically regarded as more common among older men. We included these identities in our study to determine how prevalent they are among gay men aged up to 39 years. However, it is worth noting that studies involving older age groups are likely to find a different profile of subcultural identities. For example, while Cub and Twink were relatively common in our sample of 18-39 year old men, these may be less common among men aged 40 years and older.

It is further worth noting that the list of subcultural identities presented to men in the study was only of those believed to be relatively common among Australian gay men; numerous other identities exist. For this reason, men were given an option to report some other identity not listed. This led to a large diversity of identities reported, but each identity was low in number. Nevertheless, in future studies, researchers may wish to consider a more comprehensive list of identities, perhaps drawing on studies conducted elsewhere in the world, such as including identities reported by Willoughby et al. (2008). In the meantime, our study ought to be regarded as an initial examination of health disparities involving at least two relatively common subcultural identities among Australian gay-identified men aged 18-39 years. Future studies involving considerably larger samples are recommended to allow

further examination of potential health disparities among a wider range of subcultural identities.

There were a few other limitations to this study. First, we allowed men to select only one subcultural identity. It is possible that some had multiple identities, with potentially different health-related patterns. Second, we did not collect data on the degree to which men were socializing with those who shared the same subcultural identity. Presumably, those with the same identity are more likely to socialize together than those with discordant identities, but the degree to which direct peer influence interacts with identity to predict health outcomes is not known. Third, while we accounted for BMI, this is not a perfect measure of excess weight, as it does not take into account additional weight from muscle building. Although there is a clear link between higher BMI and poorer health outcomes in general (Calle, Thun, Petrelli, Rodriguez, & Heath Jr, 1999), and Cub-identified men are generally known to have higher than average body fat (Gough & Flanders, 2009), it ought to be noted that some men in our study may have been heavier due to muscle building. Finally, this study was conducted in an Australian population. Most common subcultural identities, including Cub and Twink, are found among gay men worldwide. These identities are commonly reported on global gay dating sites, so it is likely that they have internationally shared meanings. Nevertheless, the potential for subtle differences in subcultures from one country to another should not be ruled out. These various limitations ought to be addressed in future research by examining any health implications of multiple identities (St. Claire & Clucas, 2012), the effects of peer influence, finding ways to control for muscles mass in addition to BMI, and testing generalizability in studies of gay men worldwide. Testing the applicability of identity-focused interventions are also recommended and would further build upon the present study and bring new understanding to links between identity and health among gay men.

In all, this study of Australian gay men aged 18-39 years found almost half reported a subcultural identity, with Cub and Twink the two most common. A high prevalence of subcultural identities further points to considerable heterogeneity within the gay male population. Moreover, we found a range of health-related differences between Cub-identified, Twink-identified, and Non-identified men, who collectively made up 84% of the sample. In particular, Twink-identified men were more likely to report higher-risk behaviors than Cub- and Non-identified men, including higher rates of smoking and alcohol consumption. Based on these findings, targeting the health patterns of particular subcultural identities may be one way to strengthen interventions for creating health-related behavior change. Further research is recommended on understanding links between health and the subcultural identities of gay men. Evaluating techniques for tailoring health messages around subcultural identities may further build the evidence base for improving strategies aimed at reducing the disproportionately high rates of health-related challenges faced by gay men.

ACKNOWLEDGEMENTS

This research was funded by the Australian Government Department of Health and Ageing.

REFERENCES

- Australian Bureau of Statistics. (2007). *National survey of mental health and wellbeing: Summary of results*. Canberra, Australia: Australian Bureau of Statistics.
- Barrera, M., Jr., Castro, F. G., & Steiker, L. K. (2011). A critical analysis of approaches to the development of preventive interventions for subcultural groups. *American Journal of Community Psychology, 48*, 439-454.
- Barrera, M., Jr., Castro, F. G., Strycker, L. A., & Toobert, D. J. (2013). Cultural adaptations of behavioral health interventions: A progress report. *Journal of Consulting and Clinical Psychology, 81*, 196-205.
- Beyrer, C., Baral, S. D., van Griensven, F., Goodreau, S. M., Chariyalertsak, S., Wirtz, A. L., & Brookmeyer, R. (2012). Global epidemiology of HIV infection in men who have sex with men. *Lancet, 380*, 367-377.
- Brazier, J. E., Harper, R., Jones, N. M., O'Cathain, A., Thomas, K. J., Usherwood, T., & Westlake, L. (1992). Validating the SF-36 health survey questionnaire: New outcome measure for primary care. *BMJ, 305*, 160-164.
- Calle, E. E., Thun, M. J., Petrelli, J. M., Rodriguez, C., & Heath Jr, C. W. (1999). Body-mass index and mortality in a prospective cohort of US adults. *New England Journal of Medicine, 341*, 1097-1105.
- Chakraborty, A., McManus, S., Brugha, T. S., Bebbington, P., & King, M. (2011). Mental health of the non-heterosexual population of England. *The British Journal of Psychiatry, 198*, 143-148.
- Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology, 71*, 53.

- Filiault, S. M., & Drummond, M. J. (2007). The hegemonic aesthetic. *Gay and Lesbian Issues and Psychology Review*, 3, 175-184.
- Fredriksen-Goldsen, K. I., Emler, C. A., Kim, H.-J., Muraco, A., Erosheva, E. A., Goldsen, J., & Hoy-Ellis, C. P. (2013). The physical and mental health of lesbian, gay male, and bisexual (LGB) older adults: The role of key health indicators and risk and protective factors. *The Gerontologist*, 53, 664-675.
- Fredriksen-Goldsen, K. I., Kim, H.-J., Barkan, S. E., Muraco, A., & Hoy-Ellis, C. P. (2013). Health disparities among lesbian, gay, and bisexual older adults: Results from a population-based study. *American Journal of Public Health*, e1-e8.
- Gonzales, R., Mooney, L., & Rawson, R. A. (2010). The methamphetamine problem in the United States. *Annual Review of Public Health*, 31, 385-398.
- Gough, B., & Flanders, G. (2009). Celebrating "obese" bodies: Gay "bears" talk about weight, body image and health. *International Journal of Men's Health*, 8, 235-253.
- Grov, C., Bimbi, D. S., Nand, J. E., & Parsons, J. T. (2006). Race, ethnicity, gender, and generational factors associated with the coming-out process among gay, lesbian, and bisexual individuals. *Journal of Sex Research*, 43, 115-121.
- Halkitis, P. N., Palamar, J. J., & Mukherjee, P. P. (2007). Poly-club-drug use among gay and bisexual men: A longitudinal analysis. *Drug and Alcohol Dependence*, 89, 153-160.
- Halkitis, P. N., & Parsons, J. T. (2002). Recreational drug use and HIV-risk sexual behavior among men frequenting gay social venues. *Journal of Gay and Lesbian Social Services: Issues in Practice, Policy and Research*, 14, 19-38.
- Herbst, J. H., Sherba, R., Crepaz, N., DeLuca, J. B., Zohrabyan, L., Stall, R. D., & Lyles, C. M. (2005). A meta-analytic review of HIV behavioral interventions for reducing sexual risk behavior of men who have sex with men. *Journal of Acquired Immune Deficiency Syndromes*, 39, 228-241.

- Kampf, R. (2000). *The Bear handbook: A comprehensive guide for those who are husky, hairy and homosexual and those who love'em*. New York, NY: Haworth Press.
- Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., . . . Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, *60*, 184-189.
- King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, *8*, 70.
- Lea, T., Reynolds, R., & de Wit, J. (2013). Alcohol and club drug use among same-sex attracted young people: Associations with frequenting the lesbian and gay scene and other bars and nightclubs. *Substance Use and Misuse*, *48*, 129-136.
- Leonard, W., Pitts, M., Mitchell, A., Lyons, A., Smith, A., Patel, S., . . . Barrett, A. (2012). *Private Lives 2: The second national survey of the health and wellbeing of gay, lesbian, bisexual and transgender (GLBT) Australians, Monograph Series No. 86*. Melbourne, Australia: La Trobe University.
- Lyons, A., & Hosking, W. (2014). Prevalence and correlates of sexual partner concurrency among Australian gay men aged 18-39 years. *AIDS and Behavior*, *18*, 801-809.
- Lyons, A., Pitts, M., & Grierson, J. (2012). Exploring the psychological impact of HIV: Health comparisons of older Australian HIV-positive and HIV-negative gay men. *AIDS and Behavior*, *16*, 2340-2349.
- Lyons, A., Pitts, M., & Grierson, J. (2013a). Factors related to positive mental health in a stigmatized minority: An investigation of older gay men. *Journal of Aging and Health*, *25*, 1159-1181.

- Lyons, A., Pitts, M., & Grierson, J. (2013b). Methamphetamine use in a nationwide online sample of older Australian HIV-positive and HIV-negative gay men. *Drug and Alcohol Review, 32*, 603-610.
- Lyons, A., Pitts, M., Grierson, J. W., Smith, A., McNally, S., & Couch, M. (2012a). Age at first anal sex and HIV/STI vulnerability among gay men in Australia. *Sexually Transmitted Infections, 88*, 252-257.
- Lyons, A., Pitts, M., Grierson, J. W., Smith, A., McNally, S., & Couch, M. (2012b). Sexual behavior and HIV testing among bisexual men: A nationwide comparison of Australian bisexual-identifying and gay-identifying men. *AIDS and Behavior, 16*, 1934-1943.
- Manley, E., Levitt, H., & Mosher, C. (2007). Understanding the bear movement in gay male culture: Redefining masculinity. *Journal of Homosexuality, 53*, 89-112.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*, 674-697.
- Miller, C. T., & Downey, K. T. (1999). A meta-analysis of heavyweight and self-esteem. *Personality and Social Psychology Review, 3*, 68-84.
- Mohr, J. J., & Kendra, M. S. (2011). Revision and extension of a multidimensional measure of sexual minority identity: The Lesbian, Gay, and Bisexual Identity Scale. *Journal of Counseling Psychology, 58*, 234-245.
- Moskowitz, D. A., Turrubiates, J., Lozano, H., & Hajek, C. (2013). Physical, behavioral, and psychological traits of gay men identifying as Bears. *Archives of Sexual Behavior, 42*, 775-784.

- Mustanski, B. S., Newcomb, M. E., Du Bois, S. N., Garcia, S. C., & Grov, C. (2011). HIV in young men who have sex with men: A review of epidemiology, risk and protective factors, and interventions. *Journal of Sex Research, 48*, 218-253.
- Newcomb, M. E., & Mustanski, B. (2010). Internalized homophobia and internalizing mental health problems: A meta-analytic review. *Clinical Psychology Review, 30*, 1019-1029.
- Quinn, D. M., & Earnshaw, V. A. (2011). Understanding concealable stigmatized identities: The role of identity in psychological, physical, and behavioral outcomes. *Social Issues and Policy Review, 5*, 160-190.
- Resnicow, K., Davis, R., & Zhang, N. (2009). Tailoring a fruit and vegetable intervention on ethnic identity: Results of a randomized study. *Health Psychology, 28*, 394.
- Rivers, I. (2001). The bullying of sexual minorities at school: Its nature and long-term correlates. *Educational and Child Psychology, 18*, 32-46.
- Rivers, I. (2004). Recollections of bullying at school and their long-term implications for lesbians, gay men, and bisexuals. *Crisis, 25*, 169-175.
- Rosario, M., Schrimshaw, E. W., Hunter, J., & Braun, L. (2006). Sexual identity development among lesbian, gay, and bisexual youths: Consistency and change over time. *Journal of Sex Research, 43*, 46-58.
- Rosenberg, M. (1979). *Conceiving the self*. New York, NY: Basic Books.
- Shmueli, A. (1999). Subjective health status and health values in the general population. *Medical Decision Making, 19*, 122-127.
- St. Claire, L., & Clucas, C. (2012). In sickness and in health: Influences of social categorizations on health-related outcomes. In J. Jetten, C. Haslam & S. A. Haslam (Eds.), *The social cure: Identity, health and well-being* (pp. 75-95). New York, NY: Psychology Press.

- The Kirby Institute. (2012). *HIV, viral hepatitis and sexually transmitted infections in Australia: Annual surveillance report 2012*. Sydney, Australia: Kirby Institute.
- Visscher, T. L., & Seidell, J. C. (2001). The public health impact of obesity. *Annual Review of Public Health, 22*, 355-375.
- Willoughby, B. L., Lai, B. S., Doty, N. D., Mackey, E. R., & Malik, N. M. (2008). Peer crowd affiliations of adult gay men: Linkages with health risk behaviors. *Psychology of Men and Masculinity, 9*, 235-247.
- Wolitski, R. J., & Fenton, K. A. (2011). Sexual health, HIV, and sexually transmitted infections among gay, bisexual, and other men who have sex with men in the United States. *AIDS and Behavior, 15 Suppl 1*, S9-17.

Table 1

Demographic Variables According to Subcultural Identity

	Cub		Twink		Non-identified		<i>p</i>
	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	
Age	28.2		22.9		27.5		
Unadjusted ^a		.03 (.66)		-.32 (.47) ^{***}		ref	<.001
Unadjusted ^b		.26 (.73) ^{***}		ref		.35 (.47) ^{***}	
Adjusted ^{a c}		.05 (.59)		-.23 (.44) ^{***}		ref	<.001
Adjusted ^{b c}		.22 (.67) ^{***}		ref		.26 (.44) ^{***}	
	%	<i>OR</i> (95% <i>CI</i>)	%	<i>OR</i> (95% <i>CI</i>)	%	<i>OR</i> (95% <i>CI</i>)	<i>p</i>
University education	40		25		38		
Unadjusted ^a		1.09 (.69, 1.70)		.53 (.37, .77) ^{**}		ref	.002
Unadjusted ^b		2.03 (1.20, 3.43) ^{**}		ref		1.87 (1.31, 2.68) ^{**}	
Adjusted ^{a c}		1.05 (.66, 1.70)		.74 (.50, 1.10)		ref	.29
Adjusted ^{b c}		1.43 (.81, 2.51)		ref		1.35 (.91, 2.00)	
Employed	67		56		72		
Unadjusted ^a		.78 (.49, 1.26)		.50 (.36, .70) ^{***}		ref	<.001
Unadjusted ^b		1.55 (.92, 2.60)		ref		1.98 (1.42, 2.76) ^{***}	
Adjusted ^{a c}		.65 (.37, 1.16)		.82 (.55, 1.23)		ref	.27
Adjusted ^{b c}		.80 (.42, 1.50)		ref		1.22 (.81, 1.82)	
Annual income \geq\$50,000	44		25		46		
Unadjusted ^a		.91 (.58, 1.43)		.40 (.27, .57) ^{***}		ref	<.001
Unadjusted ^b		2.29 (1.35, 3.90) ^{**}		ref		2.51 (1.74, 3.63) ^{***}	
Adjusted ^{a c}		.86 (.49, 1.50)		.99 (.62, 1.58)		ref	.87

Adjusted ^{b,c}		.86 (.44, 1.69)		ref		1.01 (.63, 1.60)	
Living in a capital city	80		85		84		
Unadjusted ^a		.76 (.43, 1.33)		1.09 (.69, 1.70)		ref	.53
Unadjusted ^b		.69 (.36, 1.32)		ref		.92 (.59, 1.44)	
Anglo-Celtic background	79		72		71		
Unadjusted ^a		.68 (.39, 1.19)		.96 (.66, 1.41)		ref	.40
Unadjusted ^b		.71 (.38, 1.32)		ref		1.04 (.71, 1.52)	
Born in Australia	82		88		83		
Unadjusted ^a		.94 (.53, 1.69)		1.46 (.91, 2.35)		ref	.26
Unadjusted ^b		.65 (.33, 1.28)		ref		.68 (.43, 1.10)	

Note. Variables that displayed significant differences between the three groups are indicated with boldface. Models were conducted separately for each demographic variable with linear regressions for continuous variables and logistic regressions for categorical variables. ^a Reference category = Non-identified; ^b Reference category = Twink-identified; ^c Adjusted for all other demographic variables that were associated with subcultural identity at $p < .20$ in the unadjusted analyses. M = mean; β = standardized regression coefficient; SE = standard error; OR = odds ratio; CI = confidence interval; ref = reference category; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 2

Physical Health and Substance Use According to Subcultural Identity

	Cub		Twink		Non-identified		<i>p</i>
	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	
Body mass index (BMI)	29.4		22.1		25.6		
Unadjusted ^a		.21 (.58) ^{***}		-.27 (.41) ^{***}		ref	<.001
Unadjusted ^b		.41 (.64) ^{***}		ref		.31 (.41) ^{***}	
Adjusted for age ^a		.21 (.56) ^{***}		-.20 (.42) ^{***}		ref	<.001
Adjusted for age ^b		.35 (.64) ^{***}		ref		.23 (.42) ^{***}	
Self-rated physical health	2.8		3.3		3.2		
Unadjusted ^a		-.11 (.11) ^{**}		.02 (.08)		ref	.003
Unadjusted ^b		-.13 (.13) ^{**}		ref		-.02 (.08)	
Adjusted for age ^a		-.11 (.11) ^{**}		.04 (.09)		ref	.001
Adjusted for age ^b		-.14 (.13) ^{**}		ref		-.04 (.09)	
Adjusted for age and BMI ^a		-.03 (.11)		-.02 (.08)		ref	.59
Adjusted for age and BMI ^b		-.01 (.13)		ref		.03 (.08)	
Average standard alcoholic drinks on a drinking day^c	4.6		6.3		5.1		
Unadjusted ^a		-.03 (.94)		.09 (.68)		ref	.17
Unadjusted ^b		-.09 (1.07)		ref		-.10 (.68)	
Adjusted for age ^a		-.03 (.94)		.09 (.73)		ref	.23
Adjusted for age ^b		-.09 (1.10)		ref		-.10 (.73)	
Adjusted for age and BMI ^a		-.05 (.70)		.14 (.53) [*]		ref	.04
Adjusted for age and BMI ^b		-.15 (.84) [*]		ref		-.15 (.53) [*]	

	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)	<i>p</i>
Drink alcohol one or more days a week	38		37		44		
Unadjusted ^a		.81 (.51, 1.27)		.75 (.54, 1.04)		ref	.18
Unadjusted ^b		1.08 (.65, 1.80)		ref		1.34 (.96, 1.86)	
Adjusted for age ^a		.78 (.49, 1.23)		.94 (.67, 1.34)		ref	.56
Adjusted for age ^b		.82 (.48, 1.40)		ref		1.06 (.75, 1.50)	
Adjusted for age and BMI ^a		.92 (.57, 1.50)		.85 (.60, 1.23)		ref	.67
Adjusted for age and BMI ^b		1.08 (.61, 1.91)		ref		1.17 (.82, 1.68)	
Smoke tobacco	26		33		23		
Unadjusted ^a		1.21 (.73, 2.00)		1.66 (1.17, 2.36)**		ref	.02
Unadjusted ^b		.73 (.42, 1.26)		ref		.60 (.42, .86)**	
Adjusted for age ^a		1.18 (.71, 1.97)		2.21 (1.50, 3.24)***		ref	<.001
Adjusted for age ^b		.54 (.30, .95)*		ref		.45 (.31, .66)***	
Adjusted for age and BMI ^a		1.10 (.63, 1.89)		2.17 (1.47, 3.22)***		ref	<.001
Adjusted for age and BMI ^b		.50 (.27, .94)*		ref		.46 (.31, .68)***	
Used cannabis past 12 months	35		37		26		
Unadjusted ^a		1.54 (.97, 2.47)		1.71 (1.21, 2.41)**		ref	.004
Unadjusted ^b		.90 (.54, 1.51)		ref		.58 (.41, .82)**	
Adjusted for age ^a		1.55 (.97, 2.48)		1.68 (1.17, 2.41)**		ref	.008
Adjusted for age ^b		.92 (.54, 1.57)		ref		.60 (.41, .85)**	
Adjusted for age and BMI ^a		1.64 (.99, 2.72)		1.52 (1.05, 2.20)*		ref	.02
Adjusted for age and BMI ^b		1.08 (.60, 1.95)		ref		.66 (.45, .95)*	
Used methamphetamine past 12 months	7		11		8		

Unadjusted ^a		.87 (.36, 2.10)		1.46 (.85, 2.51)		ref		.32
Unadjusted ^b		.59 (.23, 1.52)		ref		.68 (.40, 1.18)		
Adjusted for age ^a		.85 (.35, 2.06)		1.94 (1.07, 3.51)*		ref		.07
Adjusted for age ^b		.44 (.16, 1.16)		ref		.51 (.28, .93)*		
Adjusted for age and BMI ^a		.62 (.21, 1.80)		1.77 (.96, 3.23)		ref		.10
Adjusted for age and BMI ^b		.35 (.11, 1.13)		ref		.57 (.31, 1.04)		
Used other drugs past 12 months	14		21		21			
Unadjusted ^a		.61 (.33, 1.14)		.99 (.67, 1.47)		ref		.30
Unadjusted ^b		.61 (.31, 1.22)		ref		1.01 (.68, 1.49)		
Adjusted for age ^a		.60 (.32, 1.12)		1.21 (.80, 1.84)		ref		.14
Adjusted for age ^b		.49 (.25, .99)*		ref		.83 (.54, 1.25)		
Adjusted for age and BMI ^a		.57 (.29, 1.13)		1.11 (.73, 1.71)		ref		.22
Adjusted for age and BMI ^b		.51 (.24, 1.11)		ref		.90 (.58, 1.38)		

Note. Variables that displayed significant differences between the three groups are indicated with boldface. Models were conducted separately for each physical health and substance use-related variable with linear regressions for continuous variables and logistic regressions for categorical variables. ^a Reference category = Non-identified; ^b Reference category = Twink-identified; ^c Of those who typically drank at least once per week (N=359); *M* = mean; β = standardized regression coefficient; *SE* = standard error; *OR* = odds ratio; *CI* = confidence interval; ref = reference category; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3

Mental Health and Stigma-related Variables According to Subcultural Identity

	Cub		Twink		Non-identified		<i>p</i>
	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	
Psychological distress	22.6		23.4		21.5		
Unadjusted ^a		.04 (.97)		.10 (.69)**		ref	.02
Unadjusted ^b		-.03 (1.08)		ref		-.11 (.69)**	
Adjusted for age ^a		.05 (.96)		.05 (.72)		ref	.17
Adjusted for age ^b		.01 (1.10)		ref		-.06 (.72)	
Adjusted for age and BMI ^a		.02 (1.00)		.07 (.74)		ref	.13
Adjusted for age and BMI ^b		-.03 (1.17)		ref		-.08 (.74)	
Self-esteem	17.8		18.5		19.5		
Unadjusted ^a		-.09 (.70)*		-.07 (.51)*		ref	.02
Unadjusted ^b		-.04 (.79)		ref		.08 (.51)*	
Adjusted for age ^a		-.09 (.70)*		-.03 (.54)		ref	.03
Adjusted for age ^b		-.06 (.81)		ref		.04 (.54)	
Adjusted for age and BMI ^a		-.06 (.72)		-.05 (.55)		ref	.12
Adjusted for age and BMI ^b		-.03 (.85)		ref		.05 (.55)	
Internalized stigma	1.9		2.0		2.0		
Unadjusted ^a		-.04 (.14)		-.02 (.10)		ref	.57
Unadjusted ^b		-.02 (.16)		ref		.02 (.10)	
Adjusted for age ^a		-.03 (.14)		-.05 (.11)		ref	.33
Adjusted for age ^b		.00 (.16)		ref		.05 (.11)	
Adjusted for age and BMI ^a		-.03 (.15)		-.03 (.11)		ref	.44
Adjusted for age and BMI ^b		-.01 (.17)		ref		.04 (.11)	

Positive feelings toward sexual orientation	4.6		4.7		4.4		
Unadjusted ^a		.03 (.13)		.10 (.10)**		ref	.02
Unadjusted ^b		-.04 (.15)		ref		-.11 (.10)**	
Adjusted for age ^a		.03 (.13)		.11 (.10)**		ref	.008
Adjusted for age ^b		-.05 (.15)		ref		-.13 (.10)**	
Adjusted for age and BMI ^a		.02 (.14)		.11 (.10)**		ref	.01
Adjusted for age and BMI ^b		-.06 (.16)		ref		-.12 (.10)**	
Feeling connected with the gay community	2.3		2.4		2.2		
Unadjusted ^a		.02 (.10)		.10 (.07)**		ref	.01
Unadjusted ^b		-.05 (.11)		ref		-.11 (.07)**	
Adjusted for age ^a		.02 (.10)		.11 (.07)**		ref	.008
Adjusted for age ^b		-.06 (.11)		ref		-.13 (.07)**	
Adjusted for age and BMI ^a		.05 (.10)		.08 (.08)*		ref	.03
Adjusted for age and BMI ^b		-.01 (.12)		ref		-.09 (.08)*	
	%	<i>OR</i> (95% CI)	%	<i>OR</i> (95% CI)	%	<i>OR</i> (95% CI)	<i>p</i>
Currently receiving treatment for depression	21		14		14		
Unadjusted ^a		1.60 (.91, 2.80)		.96 (.60, 1.53)		ref	.22
Unadjusted ^b		1.67 (.87, 3.20)		ref		1.04 (.65, 1.67)	
Adjusted for age ^a		1.58 (.90, 2.77)		1.12 (.68, 1.84)		ref	.28
Adjusted for age ^b		1.41 (.72, 2.77)		ref		.89 (.54, 1.47)	
Adjusted for age and BMI ^a		1.72 (.96, 3.07)		1.14 (.68, 1.91)		ref	.18
Adjusted for age and BMI ^b		1.51 (.73, 3.09)		ref		.88 (.52, 1.47)	

Currently receiving treatment for anxiety	19		14		12	
Unadjusted ^a		1.74 (.97, 3.13)		1.20 (.74, 1.94)		ref .17
Unadjusted ^b		1.45 (.75, 2.83)		ref		.83 (.52, 1.35)
Adjusted for age ^a		1.72 (.95, 3.10)		1.42 (.85, 2.38)		ref .12
Adjusted for age ^b		1.21 (.61, 2.42)		ref		.70 (.42, 1.18)
Adjusted for age and BMI ^a		1.87 (1.00, 3.44)		1.43 (.84, 2.44)		ref .08
Adjusted for age and BMI ^b		1.30 (.62, 2.74)		ref		.70 (.41, 1.19)
Experienced discrimination past 12 months	56		52		42	
Unadjusted ^a		1.78 (1.14, 2.79)*		1.50 (1.09, 2.06)*		ref .005
Unadjusted ^b		1.19 (.72, 1.96)		ref		.67 (.48, .92)*
Adjusted for age ^a		1.82 (1.16, 2.85)*		1.33 (.95, 1.86)		ref .01
Adjusted for age ^b		1.37 (.82, 2.29)		ref		.75 (.54, 1.06)
Adjusted for age and BMI ^a		1.84 (1.15, 2.94)*		1.31 (.92, 1.85)		ref .02
Adjusted for age and BMI ^b		1.40 (.81, 2.43)		ref		.76 (.54, 1.08)
Sexual orientation known by nobody or almost nobody	8		8		10	
Unadjusted ^a		.76 (.33, 1.72)		.83 (.47, 1.46)		ref .69
Unadjusted ^b		.92 (.37, 2.29)		ref		1.21 (.68, 2.13)
Adjusted for age ^a		.80 (.35, 1.82)		.63 (.35, 1.13)		ref .29
Adjusted for age ^b		1.27 (.50, 3.26)		ref		1.59 (.88, 2.87)
Adjusted for age and BMI ^a		.77 (.33, 1.80)		.72 (.39, 1.35)		ref .53
Adjusted for age and BMI ^b		1.06 (.39, 2.88)		ref		1.38 (.74, 2.56)

Note. Variables that displayed significant differences between the three groups are indicated with boldface. Models were conducted separately for each mental health and stigma-related variable with linear regressions for continuous variables and logistic regressions for categorical variables. ^a Reference category = Non-identified; ^b Reference category = Twink-identified; *M* = mean; β = standardized regression coefficient; *SE* = standard error; *OR* = odds ratio; *CI* = confidence interval; ref = reference category; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

Sexual Health and Behavior According to Subcultural Identity

	Cub		Twink		Non-identified		<i>p</i>
	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	<i>M</i>	β (<i>SE</i>)	
Number of sexual partners past 12 months	7.4		7.0		6.5		
Unadjusted ^a		.03 (.14)		.09 (.10)**		ref	.02
Unadjusted ^b		-.04 (.16)		ref		-.10 (.10)**	
Adjusted for age ^a		.02 (1.38)		.06 (1.04)		ref	.26
Adjusted for age ^b		-.02 (1.58)		ref		-.07 (1.04)	
Adjusted for age and BMI ^a		.04 (1.44)		.04 (1.07)		ref	.35
Adjusted for age and BMI ^b		.01 (1.69)		ref		-.04 (1.07)	
	%	<i>OR</i> (95% <i>CI</i>)	%	<i>OR</i> (95% <i>CI</i>)	%	<i>OR</i> (95% <i>CI</i>)	<i>p</i>
In an ongoing relationship	59		46		47		
Unadjusted ^a		1.59 (1.02, 2.48)*		.96 (.70, 1.32)		ref	.10
Unadjusted ^b		1.66 (1.01, 2.73)*		ref		1.04 (.76, 1.44)	
Adjusted for age ^a		1.55 (.99, 2.44)		1.27 (.90, 1.79)		ref	.09
Adjusted for age ^b		1.22 (.73, 2.05)		ref		.79 (.56, 1.11)	
Adjusted for age and BMI ^a		1.91 (1.18, 3.10)**		1.18 (.83, 1.67)		ref	.03
Adjusted for age and BMI ^b		1.62 (.93, 2.85)		ref		.85 (.60, 1.21)	
Agreed to a non-monogamous relationship ^c	22		17		18		
Unadjusted ^a		1.32 (.65, 2.70)		.95 (.51, 1.77)		ref	.70
Unadjusted ^b		1.39 (.60, 3.22)		ref		1.05 (.57, 1.96)	

Adjusted for age ^a		1.32 (.65, 2.70)		1.20 (.61, 2.38)		ref	.69
Adjusted for age ^b		1.10 (.45, 2.65)		ref		.83 (.42, 1.64)	
Adjusted for age and BMI ^a		1.70 (.78, 3.69)		1.12 (.56, 2.24)		ref	.40
Adjusted for age and BMI ^b		1.52 (.57, 4.03)		ref		.89 (.44, 1.79)	
Receptive anal sex at most recent sexual encounter	38		54		43		
Unadjusted ^a		.82 (.52, 1.30)		1.57 (1.14, 2.17)**		ref	.008
Unadjusted ^b		.52 (.32, .87)*		ref		.64 (.46, .88)**	
Adjusted for age ^a		.83 (.53, 1.31)		1.48 (1.05, 2.07)*		ref	.04
Adjusted for age ^b		.56 (.33, .94)*		ref		.68 (.48, .95)*	
Adjusted for age and BMI ^a		.78 (.49, 1.26)		1.52 (1.07, 2.15)*		ref	.03
Adjusted for age and BMI ^b		.52 (.30, .90)*		ref		.66 (.46, .93)*	
Anal sex with a casual partner and without a condom at most recent sexual encounter ^d	20		36		26		
Unadjusted ^a		.69 (.18, 2.62)		1.57 (.76, 3.24)		ref	.35
Unadjusted ^b		.44 (.11, 1.79)		ref		.64 (.31, 1.31)	
Adjusted for age ^a		.68 (.18, 2.59)		1.69 (.78, 3.65)		ref	.30
Adjusted for age ^b		.40 (.10, 1.69)		ref		.59 (.27, 1.27)	
Adjusted for age and BMI ^a		.40 (.08, 1.95)		1.91 (.86, 4.25)		ref	.12
Adjusted for age and BMI ^b		.21 (.04, 1.14)		ref		.52 (.23, 1.16)	
Had an STI test past 12 months	52		55		44		
Unadjusted ^a		1.41 (.90, 2.19)		1.60 (1.16, 2.21)**		ref	.01
Unadjusted ^b		.88 (.54, 1.44)		ref		.62 (.45, .86)**	
Adjusted for age ^a		1.39 (.89, 2.16)		1.78 (1.27, 2.51)**		ref	.003
Adjusted for age ^b		.78 (.47, 1.29)		ref		.56 (.40, .79)**	

Adjusted for age and BMI ^a		1.49 (.94, 2.37)		1.60 (1.13, 2.27)**		ref		.01
Adjusted for age and BMI ^b		.93 (.54, 1.61)		ref		.62 (.44, .89)**		
Diagnosed with an STI past 12 months ^c	6		17		15			
Unadjusted ^a		.37 (.11, 1.27)		1.14 (.62, 2.08)		ref		.23
Unadjusted ^b		.33 (.09, 1.17)		ref		.88 (.48, 1.61)		
Adjusted for age ^a		.37 (.11, 1.25)		1.24 (.64, 2.38)		ref		.19
Adjusted for age ^b		.30 (.08, 1.10)		ref		.81 (.42, 1.56)		
Adjusted for age and BMI ^a		.25 (.06, 1.10)		1.28 (.66, 2.51)		ref		.12
Adjusted for age and BMI ^b		.19 (.04, .94)*		ref		.78 (.40, 1.52)		
Ever had an HIV test	80		65		73			
Unadjusted ^a		1.49 (.86, 2.57)		.67 (.48, .95)*		ref		.01
Unadjusted ^b		2.21 (1.22, 3.98)**		ref		1.48 (1.05, 2.09)*		
Adjusted for age ^a		1.31 (.72, 2.37)		1.33 (.91, 1.94)		ref		.27
Adjusted for age ^b		.98 (.52, 1.86)		ref		.75 (.51, 1.09)		
Adjusted for age and BMI ^a		1.58 (.85, 2.96)		1.11 (.75, 1.64)		ref		.33
Adjusted for age and BMI ^b		1.42 (.71, 2.86)		ref		.90 (.61, 1.33)		
Diagnosed with HIV ^f	1		2		5			
Unadjusted ^a		.27 (.04, 2.08)		.46 (.14, 1.59)		ref		.24
Unadjusted ^b		.59 (.06, 5.79)		ref		2.14 (.63, 7.35)		
Adjusted for age ^a		.27 (.04, 2.09)		1.14 (.29, 4.46)		ref		.44
Adjusted for age ^b		.24 (.02, 2.52)		ref		.87 (.22, 3.40)		
Adjusted for age and BMI ^a		-		1.03 (.26, 4.04)		ref		.96
Adjusted for age and BMI ^b		-		ref		.97 (.25, 3.79)		

Note. Variables that displayed significant differences between the three groups are indicated with boldface. Models were conducted separately for each sexual health and behavior variable with linear regressions for continuous variables and logistic regressions for categorical variables. ^a Reference category = Non-identified; ^b Reference category = Twink-identified; ^c Of those who reported being in a relationship (N=419); ^d Of those who reported having had anal sex with a casual partner at their most recent sexual encounter (N=179); ^e Of those who reported having had an STI test in the past 12 months and were aware of the test result (N=410); ^f Of those who reported ever having been tested for HIV and were aware of the test result (N=628); *M* = mean; β = standardized regression coefficient; *SE* = standard error; *OR* = odds ratio; *CI* = confidence interval; ref = reference category; * $p < .05$; ** $p < .01$; *** $p < .001$