

Asexual Identity in a New Zealand National Sample: Demographics, Well-Being, and Health

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Abstract Academic interest in asexuality has increased in recent years; however, there is yet to be a national probability study exploring the correlates of self-identifying as asexual. Here, we utilized data from the 2014/15 New Zealand Attitudes and Values Study. Past research has typically used attraction-based measures; however, we asked participants to describe their sexual orientation using a self-generated, open-ended item, and 0.4% ($n = 44$) self-identified as asexual. We then compared self-identified asexual participants with a heterosexual reference group ($n = 11,822$) across a large number of demographic, psychological, and health variables. Relative to heterosexuals, self-identified asexual participants were (1) more likely to be women, and (2) substantially less likely to be cisgender, (3) in a serious romantic relationship, or (4) a parent. No deleterious mental or physical health effects were associated with asexuality when compared to heterosexuality. This study provides the first attempt at measuring self-identification as asexual in a national sample and highlights core similarities and differences between those who identify as asexual and heterosexual.

Keywords Asexuality · Sexual orientation · Sexual identity

Introduction

Scholars describe asexuality as a lack of, or low levels of, sexual attraction (Bogaert, 2004, 2006, 2012, 2015; Brotto, Knudson, Inskip, Rhodes, & Erskine, 2010; Brotto & Yule, 2011, 2016; Carrigan, 2011; Prause & Graham, 2007). Given this understanding, the typical way to measure whether someone is asexual or not has been through attraction-based measures of sexual orientation (Bogaert, 2004, 2013; Smith, Rissel, Richters, Grulich, & de Visser, 2003). It is, however, unknown how many people actually self-identify as asexual (rather than display asexual desire or a lack of sexual behavior). This alone is important to establish, as asexuality is becoming increasingly recognized as a valid and meaningful sexual orientation. Asexuality (although likely always in existence; Carrigan, 2015) has emerged as a recognized sexual identity in the past 15 years through community creation, activism, and promotion, namely from the Asexual Visibility and Education Network (AVEN, from 2001; <http://www.asexuality.org>), popular interest (Pagan Westphal, 2004), and academic work (Bogaert, 2004; Scherrer, 2008; see Carrigan, 2015 for a summary).

Given the emerging visibility of asexuality, we present the first study exploring the prevalence and correlates of self-identified asexuals in a national sample. Specifically, we utilized data from the New Zealand Attitudes and Values Study (NZAVS; $N = 15,822$), a national probability study, in which we asked the question: “How would you describe your sexual orientation?” We report the prevalence of various asexual identities and compare asexual participants to heterosexual participants across a range of demographics, psychological distress, indicators of social well-being, and health outcomes.

Asexuality and Demographics

In the first study of its kind, Bogaert (2004) found that 1.05% of a British national sample agreed with the statement: “I have

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never felt sexually attracted to anyone at all” (p. 281); Bogaert defined these participants as asexual. Reporting no sexual attractions was also associated with being female and older, as well as a lower chance of ever being in a long-term relationship, lower socioeconomic status, lower education, being from a non-White ethnicity, and attending more religious services. Subsequently, Bogaert (2013) analyzed data from the same cross-sectional study conducted with a new sample 10 years later and found that only 0.5% of the sample reported that they never felt sexual attractions. This lower rate of asexuality was attributed to a change in methodology: the new sample was restricted to a younger age range. Consistent with the earlier study, however, Bogaert found that asexual participants (versus non-asexual participants) were more likely to be women, non-White and religious, less likely to be in a relationship, had an increased likelihood of having a lower socioeconomic status, and had attained lower levels of education. No significant differences were found for age with the newer sample.

Beyond Britain, asexuality has been analyzed in both Australian and American national samples. In an Australian national sample, Smith et al. (2003) found 0.4% of people reported that they had never felt sexual attraction toward others and that women were more likely to report never having had sexual attraction to anyone, when compared with men. Poston and Baumle (2010) investigated asexuality in an American national sample of 15–44-year-olds and found 0.8% of women and 0.7% of men had answered “not sure” to a question asking which gender the participants were attracted to. Additionally, 5% of women and 6% of men had never had sex—their indicator of possible asexuality through behavior (although they noted that this could be through lack of opportunity, or for religious reasons; see also Haydon, Cheng, Herring, McRee, & Halpern, 2014). Furthermore, in a convenience sample of self-identified asexuals, Prause and Graham (2007) found no significant gender differences between asexuals and non-asexuals, but that asexuals were older, more educated, and more likely to be single than those who were classified as non-asexual.

There have also been preliminary findings suggesting a relationship between being asexual and being non-cisgender. Non-cisgender people are those whose gender identity does not match their sex assigned at birth (e.g., people who identify as transgender, gender fluid, agender, outside of the gender binary, and more; see also Serano, 2007). Brotto et al. (2010) found that when using online samples recruited from AVEN, a relatively large proportion of participants (12.6%) did not respond to their query about sex, which required that participants choose either “male” or “female” (see also Gazzola & Morrison, 2011; MacNeela & Murphy, 2015; Yule, Brotto, & Gorzalka, 2015). Additionally, Grant et al. (2011) found that around 4% of transgender individuals identified as asexual, whereas the highest estimate in the overall population that identify as asexual has been 1.05% (Bogaert, 2004). These initial findings into gender identity and asexuality warrant further investigation in a national sample.

Asexuality, Well-Being, and Health

In addition to demographics, research has also explored the links between asexuality, well-being, and psychological and physical health. Brotto et al. (2010) tested an online sample, recruited from AVEN, on measures of mental health and social functioning. Asexual participants were no more likely than the population baseline to have ever been diagnosed with a mental disorder, and had similar depression scores to the general population. Asexual participants, however, were more socially avoidant than the large community sample they were compared to. In a follow-up study with the same sample, half of the participants interviewed said that they believed they met the criteria for schizoid personality disorder (i.e., they had a lack of interest in close relationships, and emotional coldness). In related literature focussing on lifetime abstainers from sexual behavior, rather than those who identified as asexual, Chou, Ng, and Yu (2014) found that abstainers were less likely to have received a psychiatric diagnosis in comparison with other participants in their national American sample. That being said, abstainers were more likely to have an avoidant or dependent personality disorder.

Subsequently, Yule, Brotto, and Gorzalka (2013) found that asexual individuals were more likely to report having mood and anxiety disorders than heterosexuals. Specifically, asexual men scored higher on measures of somatization, depression, suicidality, and psychoticism when compared with heterosexual men. Similarly, asexual women had higher phobic anxiety, psychoticism, and suicidality when compared with heterosexual women. In line with prior work on social avoidance, asexual men also had higher coldness, social avoidance, and non-assertive personality scores. Asexual women had higher scores on coldness, vindictiveness, social avoidance, non-assertiveness, and exploitable personality inventory indices. It was speculated that these differences might be partially due to the discrimination faced by asexual people, and living in a society that places a considerable emphasis on sex (see also Chasin, 2015; Scherrer, 2008). The results were particularly striking, given their contrast to the results of Brotto et al.’s (2010) findings that asexuals were not more likely to have a mental health diagnosis, and again highlight the need for additional studies. The researchers speculated that some self-selecting asexual samples may downplay their psychiatric symptoms in research on asexuality to ensure they are portraying asexuality in a positive light.

In addition to mental health, research has also explored the associations between asexuality and physical health characteristics. Bogaert (2004) found overall, in comparison with sexual participants, that asexuals had a shorter height and lighter weight. However, when analyzed by gender, both asexual men and women were shorter than their non-asexual counterparts, but the effects for weight were not significant. Asexual participants were more likely to have a disability or long-term illness, and rated their health as being worse, when compared to their non-asexual counterparts. In a later sample, Bogaert (2013) found that asexual participants

were again shorter, but no significant differences were found for health or weight. Poston and Baumle (2010) found that asexuals had a shorter average height, and also rated their health as poorer. They explained that these differences may be caused by people with long-term health issues having reduced sexual attractions, and therefore being more likely to identify as asexual, or report never having been attracted to anyone. Regarding the height and weight differences, Bogaert (2013) speculated that they may be related to the possible biological or genetic causes of asexuality. In the present study, we aim to simultaneously investigate between group differences in health and well-being, as well as height and weight, in asexual and non-asexual people.

Overview and Hypotheses

Here, we extend the previous literature by investigating how many people describe their sexual orientation as asexual in a national sample. While we did not have a firm prediction about the percentage of people who would identify as asexual (.40–1.05% in previous research), we hypothesized that a smaller proportion of the population would actually self-identify as asexual (i.e., write “asexual” when freely describing their sexual identity) when compared to the numbers in these previous attraction-based studies (see Prause & Graham, 2007).

We also aimed to explore the associations between asexuality and various demographic, mental health, social well-being, and physical health variables. We hypothesized that more women than men would self-identify as asexual (in line with Bogaert, 2004, 2013; Brotto et al., 2010; Höglund, Jern, Sandnabba, & Santtila, 2014; Poston & Baumle, 2010; Scherrer, 2008; Smith et al., 2003; Van Houdenhove, Gijs, T’sjoen, & Enzlin, 2015). We believed that a higher rate of participants that self-identified as non-cisgender would also self-identify as asexual (as per Brotto et al., 2010; Gazzola & Morrison, 2011; MacNeela & Murphy, 2015; Yule et al., 2015). Considering our form of measurement (self-generated sexual identity as opposed to attraction in many previous studies), we were unsure of what our findings would be across a range of demographic variables, and thus analyses were largely exploratory. However, we expected that self-identified asexual participants would be less likely to be in a relationship than their heterosexual counterparts (Bogaert, 2004, 2013; Brotto et al., 2010; Höglund et al., 2014; Prause & Graham, 2007). Similarly, given that low or absent sexual interest is a defining characteristic of asexuality, we believed there would be a lower rate of parenthood among asexuals than heterosexuals.

Although there have been mixed findings, the balance of previous research led us to hypothesize that asexual participants might have increased Kessler-6 scores (an index of non-specific psychological distress; e.g., Yule et al., 2013). We also thought that asexual participants would have a lower level of felt belongingness and social support (Brotto et al., 2010; Yule et al., 2013). There have not been previous findings for satisfaction with life or

self-esteem; however, it is likely these relate to negative mental health. Therefore, the possibility exists that these will be lower in self-identified asexuals, when compared with heterosexuals. We expected that those who identify as asexual would be shorter on average than heterosexuals (Bogaert, 2004, 2013; Poston & Baumle, 2010) and that this would also generalize to a lighter overall weight (i.e., a smaller size overall). As for self-rated health and long-term illness or disability, given that there have been inconsistent findings depending on the variables controlled for (Bogaert, 2004, 2016; Poston & Baumle, 2010), we conducted these analyses without an a priori hypothesis.

Method

Participants

The final question in the NZAVS questionnaire asked participants “How would you describe your sexual orientation?” Participants were provided with a small, open-ended box to write their answer. Responses were coded according to the classification scheme devised by Greaves et al. (2016; see also Greaves, 2014). This item was utilized so that participants could describe their sexual orientation in their own words (self-generated sexual orientation), without any priming or prompting. Responses were initially grouped together into 49 diverse themes (called *Level 2* of the coding scheme). These were in turn coded into a smaller group of categories (called *Level 1* of the coding scheme), based on conceptually different sexual orientations found in the literature (i.e., heterosexuality, bisexuality, lesbian/gay, bicuriosity, pansexuality/open, asexuality).

Some of the themes that emerged included inappropriate responses that could not be coded (5.6% of responses): those who specified their frequency of sexual behavior, the level of satisfaction with their frequency of sexual behavior, described their fetish(es), or stated their marital status, etc. There were also two types of missing data responses: those who did not fill in the last page of the survey (1.3%) and those who did not answer the sexual orientation question in particular, said they did not want to answer, or said that they found the question confusing (13.3%). These excluded responses included those who expressed they were celibate/a virgin (0.1% of the total sample, $n = 18$; e.g., “celibate” and “no sex”), those who expressed illness or age in their answer (0.2%, $n = 34$; most of these people said this was due to age: e.g., “too old,” “past it!” and 5 indicated a physical reason, e.g., “not interested, too old and sick” and “too sick to boogie”), and those who stated that they had no sexual orientation (0.9%; $n = 136$; e.g., “N/A [Not Applicable],” “Nil,” and “Non-existent”). Note that while previous studies may have included some of these participants due to attraction-based measures of asexuality, we excluded them as our aim was to focus on those who explicitly identified as asex-

ual. We excluded all of these inappropriate and missing responses from the analyses (a total of 20.2%).

In the Time 6 (2014/15; i.e., the sixth wave of the longitudinal NZAVS) sample, when removing missing or inappropriate responses, the proportions of people who self-generated the following sexual orientations were (excluding missing data): heterosexual/straight (93.7%), lesbian/gay (2.4%), bisexual (2.1%), bicurious (0.8%), pansexual/open (0.6%), and asexual (0.4%). For simplicity, we decided to first focus on comparing asexuals to the largest “sexual” group: heterosexuals. Table 1 presents a replication of the responses to our open-ended item and their frequency within the broader asexual category. Participants included the 11,822 participants who were classified as heterosexual (62.5% women; 37.5% men; 0.1%, $n = 6$ non-cisgender), and 44 participants who self-identified as asexual (84.1% women; 15.9% men; 6.8%, $n = 3$ non-cisgender). The proportions and means for the various demographic variables we assessed are shown in Table 2 for both heterosexual and asexual participants.

Procedure

The NZAVS is an ongoing 20-year longitudinal national probability study of social attitudes, personality, and health outcomes that started in 2009. Here, we draw data from the Time 6 (2014/15) NZAVS, which contained responses from 15,822 participants. Participants were posted a copy of the questionnaire, with a second postal follow-up 2 months later. Participants who provided an email address were also emailed and invited to complete an online version if they preferred. Detailed information about the sample procedures, overall retention rates, demographic characteristics, and items included in the NZAVS questionnaires are provided on the NZAVS Web site (Sibley, 2015).

The NZAVS performs relatively well in terms of representativeness, but the largest bias in the survey is that women represent 52.1% of the New Zealand population according to the census, but comprised 63.2% of the sample analyzed here (men

Table 1 Frequency of each asexual identity term in response to the question “How Would You Describe Your Sexual Orientation?”

Self-generated sexual orientation	
Asexual	34
Cis, aromantic	1
Homosexual asexual	1
Platonic	1
Aromantic	1
Demisexual	2
Bisexual leaning toward asexual (bi but not usually interested in dating or sex)	1
Grey asexual	1
Polyromantic asexual	1
Heteroromantic asexual	1

Table 2 Proportions and means for demographic variables for both asexual and heterosexual participants

	Asexuals % (n) or M (SD)	Heterosexuals % (n) or M (SD)
Age	39.5 (15.45)	48.8 (13.64)
Women	77.3% (34)	62.5% (7387)
Cisgender	93.2% (41)	99.9% (11,816)
Māori	13.6% (6)	10.8% (1272)
Pacific	0.0% (0)	2.4% (285)
Asian	6.8% (3)	3.7% (435)
Parent	22.7% (10)	74.6% (8818)
Partnered	15.9% (7)	76.8% (9075)
Religious	40.9% (18)	39.1% (4622)
Urban	72.7% (32)	67.7% (8000)
Economic deprivation (0 low–10 high)	5.8 (2.88)	4.5 (2.76)
Education (0 low–10 high)	5.5 (2.82)	5.3 (2.77)
Height (m)	1.70 (.12)	1.71 (.11)
Weight (kg)	78.4 (25.15)	78.4 (18.04)
Disability/long-term illness	38.6% (17)	19.6% (2321)

have been found to drop out of the NZAVS over time at higher rates than women; Satherley et al., 2015). Other biases include under-sampling: the younger age groups of 20–24 (9.4% census, 4.7% of the sample), 25–29 (8.4% census, 5.2% sample), and 30–34 (8.3% census, 6.0% sample); those identifying as Māori (14.9% census, 12.5% sample), with an Asian ethnicity (5.1% census, 4.3% sample), or Pacific ethnicity (5.1% census, 3.3% sample). Our sample had lower levels of economic deprivation than the NZ average; the sample mean was 4.71, whereas the national average is 5 (Atkinson, Salmond, & Crampton, 2014).

Measures

We used a range of measures to assess psychological well-being and health. The Kessler-6 is a 6-item measure of non-specific psychological distress that has been previously validated for use in the NZAVS ($\alpha = .85$; Kessler et al., 2010; Krynen, Osborne, Duck, Houkamau, & Sibley, 2013). Participants were asked how often over the past 30 days, on a 0 (none of the time) to 4 (all of the time) scale if they had felt certain symptoms of psychological distress, for example, “feel worthless,” “feel nervous,” and “feel that everything was an effort.” Felt belongingness (Cutrona & Russell, 1987) was assessed using three items ($\alpha = .60$; on a 1 [very inaccurate] to 7 [very accurate] scale): “I know that people in my life accept and value me,” “I feel like an outsider (reverse coded),” and “I know that people around me share my attitudes and beliefs.”

Similarly, perceived social support (Cutrona & Russell, 1987) was assessed with three items ($\alpha = .81$; on a 1 [strongly disagree] to 7 [strongly agree] scale): “There are people I can depend on to help me if I really need it,” “I know there are people I can turn to

when I need help,” and “There is no one I can turn to for guidance in times of stress (reverse coded).” Satisfaction with life (Diener, Emmons, Larsen, & Griffin, 1985) was assessed with two items ($\alpha = .82$; on a 1 [strongly disagree] to 7 [strongly agree] scale): “I am satisfied with my life” and “In most ways, my life is close to ideal.” Self-esteem (adapted from Rosenberg, 1965) was assessed with three items ($\alpha = .80$, on a 1 [very inaccurate] to 7 [very accurate] scale): “I...On the whole am satisfied with myself,” “Take a positive attitude toward myself,” and “Am inclined to feel that I am a failure (reverse coded).”

We asked participants for their gender identity with the open-ended item: “What is your gender?” Age was assessed through self-reported date of birth. We included a three-item measure of subjective health adapted from Ware and Sherbourne (1992; $\alpha = .61$). Participants were asked to rate their general health on a 1 (Poor) to 7 (Excellent) scale, and to rate their level of agreement with the reverse coded statements: “I expect my health to get worse” and “I seem to get sick a little easier than other people.” For long-term illnesses or disabilities, we asked participants “Do you have a health condition or disability that limits you, and that has lasted for 6+ months?” with an option for yes or no. We also asked participants for their height (in meters) and weight (in kilograms).

Results

We conducted a binomial logistic regression to examine which demographic, social well-being, and health variables were associated with identifying as asexual (versus identifying as heterosexual). We employed $p < .01$ as criterion for statistical significance. The results of these analyses are shown in Table 3. Two gender variables were significantly associated with asexuality. Women were more likely to identify as asexual ($b = -1.44$, $SE = .48$, $z = -3.00$, $OR = .24$, $p = .003$). The second significant association was that those who identified as cisgender were less likely to identify as asexual than those who did not (i.e., participants who said their gender was transgender, gender fluid, gender queer, etc.; $b = 5.00$, $SE = 1.00$, $z = 4.98$, $OR = 148.53$, $p < .001$). For reference, people who did not identify as cisgender were 149 times more likely to identify as asexual relative to those who identified as cisgender. Those who identified as asexual had a significantly lower likelihood of being in a serious romantic relationship ($b = -2.08$, $SE = .47$, $z = -4.46$, $OR = .13$, $p < .001$). Indeed, those who identified as heterosexual were around ten times more likely to be in a serious romantic relationship than their asexual counterparts. Asexuals also had a reduced likelihood of being a parent ($b = -1.36$, $SE =$

Table 3 Logistic regression model showing the correlates of identifying as asexual (versus heterosexual)

	<i>b</i>	SE	OR	<i>z</i>
Intercept/Threshold	4.07	3.01		
Age (years)	-.02	.01	.98	-1.26
Woman (0 yes, 1 no)	-1.44	.48	.27	-3.00*
Cisgender (0 yes, 1 no)	5.00	1.00	148.53	4.98**
Māori ethnicity (0 no, 1 yes)	-.01	.48	.99	-.03
Pacific ethnicity (0 no, 1 yes)	-12.70	3.31	.00	-3.84**
Asian ethnicity (0 no, 1 yes)	.07	.65	1.08	.11
Parent (0 no, 1 yes)	-1.36	.43	.26	-3.15*
Partner (0 no, 1 yes)	-2.08	.47	.13	-4.46**
Religious (0 no, 1 yes)	.09	.33	1.09	.27
Urban neighborhood (0 no, 1 yes)	-.12	.37	.89	-.34
NZDep Index 2013 (1 low–10 high)	.07	.06	1.07	1.16
Education (0 low–10 high)	.04	.06	1.04	.68
Kessler-6	-.14	.29	.87	-.48
Felt belongingness	-.31	.19	.74	-1.57
Social support	-.23	.14	.80	-1.59
Satisfaction with life	.02	.17	1.02	.13
Self-esteem	-.04	.18	.96	-.21
Subjective health	.02	.15	1.02	.14
Height (m)	1.74	1.60	5.68	1.08
Weight (kg)	.00	.01	1.00	.48
Disability/long-term illness (0 no, 1 yes)	.64	.37	1.91	1.75

$R^2 = .64$, $SE = .08$, $z = 8.18$, $p < .001$

* $p < .01$; ** $p < .001$

.43, $z = -3.15$, $OR = .26$, $p = .002$), in that they were roughly a quarter as likely to report being a parent as heterosexual participants. Lastly, asexuals were less likely to be of Pacific ethnicity than heterosexuals ($b = -12.70$, $SE = 3.31$, $z = -3.84$, $OR = .00$, $p < .001$), with none of the 44 asexual-identified participants being of Pacific Nations descent.

Identification as asexual was not significantly associated with any of the other demographic variables we analyzed: age, ethnicity, being religious, living in an urban or rural area, socioeconomic status (as indexed by the NZDep2013), or level of education. Additionally, there were no significant associations between identifying as asexual and non-specific psychological distress, nor were there significant associations with any of the social well-being variables we tested: felt belongingness, social support, satisfaction with life, or self-esteem. Finally, identifying as asexual was not significantly associated with a subjective measure of health satisfaction, height, and weight (note that we ran the model for men and women separately, and there were still no significant differences for weight and height between heterosexual and asexual participants) or whether one was living with a disability or illness long term (i.e., enduring for more than 6 months).

To test for any possible similarities or differences between asexuality and same-gender attracted orientations, we conducted two ancillary binomial logistic regression models, presented in the [Appendix](#). The model presented in [Table 4](#) compares participants who identified as gay or lesbian with asexual participants. Asexual participants, compared to lesbian/gay participants, were more likely to be women ($b = -2.64$, $SE = .59$, $z = -4.45$, $OR = .07$, $p < .001$), more likely to be gender diverse ($b = 3.98$, $SE = 1.25$, $z = -3.19$, $OR = 53.63$, $p < .01$), less likely to be of Pacific Nations descent ($b = -12.96$, $SE = 6.14$, $z = -2.11$, $OR = .00$, $p < .05$), or in a relationship ($b = -2.16$, $SE = .52$, $z = -4.12$, $OR = .12$, $p < .001$).

The model in [Table 5](#) compares participants who identified as bisexual with asexual participants. In comparison with bisexual participants, asexuals were more likely to be women ($b = -1.43$, $SE = .5$, $z = -2.48$, $OR = .29$, $p < .05$), were less likely to be cisgender ($b = 3.15$, $SE = .137$, $z = 2.31$, $OR = 23.35$, $p < .05$), Pacific ethnicity ($b = -14.43$, $SE = 5.97$, $z = -2.42$, $OR = .00$, $p < .05$), a parent ($b = -1.02$, $SE = .50$, $z = -2.03$, $OR = .36$, $p < .05$), or partnered ($b = -1.88$, $SE = .50$, $z = -3.79$, $OR = .15$, $p < .001$). These results add weight to the idea that asexual participants tend to identify as women or gender diverse at higher rates than other sexual orientations, were less likely to be in a relationship, and at least compared to heterosexual and bisexual people, less likely to have children. Finally, there were no significant differences across any of the mental, physical, or social well-being variables we assessed for the comparisons between asexuals and bisexuals, and asexuals and lesbian/gay participants.

Discussion

In the present study, we aimed to test the prevalence of asexuality in a national probability study and further compare self-identified asexuals and heterosexuals on demographic and health and well-being indices. With reference to demographics, this study is the first to examine asexuality and gender beyond the simple cisgender (woman/man) binary in a national sample. As suggested by previous research with community samples, those who did not identify as cisgender were more likely to identify as asexual than cisgender individuals. Chasin (2011) posited that such an effect may be because the absence of sexual attractions removes certain pressures to conform with society and provides more freedom to explore one's gender. More research, however, is needed on the topic as it may also be that those who identify as non-cisgender have a greater knowledge of the terminology used to refer to various identities (i.e., a sexual orientation like asexuality). Women were also more likely to identify as asexual, a finding previously attributed to gender roles. It may be that women are more comfortable with coming out as asexual compared with men, as Western society has traditionally characterized women as less interested in sex and sexuality (e.g., see Bogaert, 2012; Van Houdenhove, Gijs, T'sjoen, & Enzlin, 2014).

Asexuality was significantly associated with being single (not being in a serious relationship), as might be intuitively expected, and as is found in the vast majority of the literature (Bogaert, 2004, 2013; Brotto et al., 2010; Höglund et al., 2014; Prause & Graham, 2007). We found that only 15.9% of self-identified asexual participants were in relationships, which is much less than the 30% found by Höglund et al. (2014), who measured asexuality as a lack of attractions. It follows that if someone does not hold sexual attractions and/or identifies as asexual they would be less likely to be in a romantic relationship, where sexual attraction and sexual intimacy are the norm. A similar finding would be that gay men are more likely to be in a relationship with a man than heterosexual men are. It should be noted, however, that a relatively high proportion of participants were in relationships. This perhaps indicates that people may have other reasons other than sex to be in relationships (Höglund et al., 2014), and points to the idea of the separation of romantic and sexual attractions for some (Diamond, 2003).

Another finding was that asexual participants were less likely to be parents than heterosexuals. Accordingly, since asexuals are less likely to have an available partner to choose to have or raise children with, this may have reduced the likelihood of them becoming parents. Past research has found that lesbian, gay, and bisexual individuals are less likely to be in relationships and to be parents than heterosexuals (Black, Gates, Sanders, & Taylor, 2000; Herek, Norton, Allen, & Sims, 2010). However, here we found that asexuals were less likely to be in a relationship than

both their bisexual and lesbian/gay counterparts and less likely to have children than bisexuals. There was no significant difference between asexuals and lesbian/gay individuals in parental status. This suggests that people who do not have heterosexual sex are less likely to have children, which is unsurprising given that the majority of children result from heterosexual sex, and an estimated 41% of worldwide births in 2008 were from unintended pregnancies (Singh, Sedgh, & Hussain, 2010).

This work then adds to that on lower levels of parenting in non-heterosexual populations. As a point of interest, the prevalence of sexual orientations associated with lower reproduction has led biologists, geneticists, and evolutionary psychologists to ask the question of how non-heterosexuality evolved, and is maintained in the current population. Studies reveal that identifying as gay or lesbian is largely heritable (Zietsch et al., 2008), and emerging work points at a biological component to asexuality as well (Yule, Brotto & Gorzalka, 2014). There is some suggestion the genes responsible for homosexuality also confer a mating advantage to heterosexuals who carry them (Zietsch et al., 2008). This could in theory also be the case for asexuality, and we look forward to future work that considers both the environmental and biological factors associated with asexuality.

Returning to the data, and contrary to expectations, a wide range of demographics, including those previously associated with asexuality—ethnicity, socioeconomic status, education, and religiosity (Bogaert, 2004, 2013)—were not significantly associated with self-identification as asexual. Additionally, none of the psychological health or social well-being variables we tested were associated with self-identification as asexual. Past samples with online community recruited samples (Brotto et al., 2010; Yule et al., 2013) have found negative mental health effects for self-identified asexuals. There is a possibility that these samples are biased in some way (Levine, 2017); for example, it may be that asexuals with a higher level of psychological distress from their experiences engage more with the online asexual community. Thus, those with higher distress are more likely to complete asexual research as they are recruited through being active in these online networks.

Alternatively, it may be that there is something different about actually identifying one's sexual orientation as asexual versus lacking attractions: a strong and declared asexual identity could act as a buffer against negative social outcomes (such as disapproval or lack of understanding from parents or friends; MacNeela & Murphy, 2015; Robbins, Graff Low, & Query, 2016). The participants in this research used specific terminology for their identities which they may have come across through participating in online communities. Describing oneself as asexual may be associated with the knowledge that asexuality is a shared identity, which in turn may result in less vulnerability to lower felt belongingness, self-esteem, life sat-

isfaction, or subjective health (Chasin, 2015; MacNeela & Murphy, 2015), compared to those who do not use such terms but nonetheless lack sexual attractions (Brotto & Yule, 2016; Levine, 2017; MacNeela & Murphy, 2015). In line with this argument, preliminary evidence shows that a strong identification with their group may be protective for lesbian, gay, and bisexual people (Lin & Israel, 2012; Rothblum, 2008; Tran, 2015). Future research should look at the buffering effect that the asexual identity, and participation in the asexual or queer community, may be having against negative outcomes for self-identified asexuals.

Self-identified asexuals also did not significantly differ from heterosexuals in their self-ratings of health, their likelihood of living with a long-term illness or disability, their height or weight. The lack of differences was particularly striking given that the data were drawn from a recent national probability sample. Again, however, the way that we measured sexual orientation may be part of the reason for this (Van Houdenhove, Enzlin, & Gijs, 2017). The asexual category as defined by sexual attraction measures may have included those who have either never had sexual attractions because of illness, or have not had attractions for a long time (Poston & Baumele, 2010). Many within the asexual community are resolute in their activism around asexuality; they make clear that the identity is not an illness and express concern that asexuality is often problematized by health professionals and society (Bogaert, 2012; Scherrer & Pfeffer, 2016). Our results may provide evidence for their argument, in that we did not find any significant health differences between heterosexuals and those who identify as asexual, although when not controlling for a range of variables, a higher rate of asexual participants, in comparison with heterosexual participants, were living with a disability or illness (see Table 2).

Limitations

Many scholars are reluctant to use explicit or self-generated measures of sexual identity in research regarding asexuality. This is because such labels are reliant on participants' knowledge of terminology, the politics of the time, and feeling comfortable enough with their identity to "come out" (or even feeling the need to come out) to the researcher or survey (Bogaert, 2012). Here, our sample comprised those who said that they were asexual using that terminology. Other measures of sexual orientation as sexual attraction would likely recognize such participants as asexual, but may miss some of those who said here they were asexual/or asexual with varying degrees of attraction (see Table 1; see also Carrigan, 2015; Prause & Graham, 2007; Van Houdenhove et al., 2015, 2017).

Therefore, although we set out to study those who self-identify as asexual, overall we are likely underestimating the asexual population (when defined as no or a low level of sexual attraction; Van Houdenhove et al., 2017), especially given that .40% in

our sample self-identified as asexual versus between .40–1.05% of other samples that used an attraction measure (Bogaert, 2004). It should be noted, however, that Prause and Graham (2007) found that when it came to categorizing participants' sexual orientations only 41.5% of their participants who self-identified as asexual would be classified as asexual using a measure similar to Bogaert's (2004) initial question of not having ever been attracted to anyone. This suggests that many of those who self-identified as asexual held or had held some level of attraction to others. However, 10.5% of the participants who reported no attractions did not self-identify as asexual in the sexual orientation identity question. This shows that attraction-based measures may miss those who might self-identify as asexual, but still hold some level of sexual attraction to others or have had attractions in the past.

The potential for a systematic bias in the missing data is important to note. A total of 20.2% of the responses to our open-ended question "How would you describe your sexual orientation?" were unable to be coded into a sexual orientation category. Although this missing data rate may seem large, one must keep in mind that we were measuring a sensitive construct in a diverse, national sample, and some people may have wished to maintain their privacy by not answering, may not know their answer, or have chosen to be ambiguous for other reasons. It is quite possible that those who are asexual, in particular, may have trouble when answering this question (Robbins et al., 2016). Those designing studies in the future may reduce their missing data rate by adding a brief descriptor of what is meant by sexual orientation. Nevertheless, the data presented here represent the second time point sexual orientation data has been collected in a longitudinal survey that has another 14 time points yet to be collected. There is little longitudinal research on asexuality (Chasin, 2016; Cranney, 2016a), the exception being Cranney (2016b), who found a high level of instability in those reporting no sexual attraction over time. Future research with the NZAVS study will undoubtedly follow up on those who "come out" as asexual over time or, due to the fluid nature of sexuality, change from asexual to another identity over time.

Conclusions

In conclusion, the study we presented here was (as far as we are aware) the first analysis of people who self-identify as asexual in a

national probability sample. We found very few differences between asexual and heterosexual (and even asexual in comparison with lesbian/gay and bisexual) participants in demographics, with the exceptions of gender identity, relationship status, and parenthood status. We found no significant differences in psychological distress, social well-being, and health variables. There may be many reasons for these findings, including the way we measured asexuality (as identity), and the potential buffering effect of holding an asexual identity, instead of only a lack of sexual attractions, in a heteronormative society. We eagerly await future research on this topic and the ability to provide longitudinal data in an attempt to address these questions.

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Data access As per the NZAVS data access statement, a copy of the anonymous data reported in each NZAVS publication is available from CS upon request from appropriately qualified researchers. Such data will be provided with the explicit understanding that it is used solely for the purposes of replicating or otherwise checking the validity of analyses reported in scientific papers analyzing NZAVS data.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of Auckland Human Participants Ethics Committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study

Appendix

See Tables 4 and 5.

Table 4 Logistic regression model showing the correlates of identifying as asexual (versus lesbian/gay)

	<i>b</i>	SE	OR	<i>z</i>
Intercept/Threshold	1.42	3.55		
Age (years)	−.02	.02	.98	−1.54
Woman (0 yes, 1 no)	−2.64	.59	.07	−4.45***
Cisgender (0 yes, 1 no)	3.98	1.25	53.63	3.19**
Māori ethnicity (0 no, 1 yes)	−.58	.62	.56	−.94
Pacific ethnicity (0 no, 1 yes)	−12.96	6.14	.00	−2.11*
Asian ethnicity (0 no, 1 yes)	1.41	.96	4.10	1.47
Parent (0 no, 1 yes)	.08	.53	1.09	.15
Partner (0 no, 1 yes)	−2.16	.52	.12	−4.12***
Religious (0 no, 1 yes)	.76	.44	2.13	1.72
Urban neighborhood (0 no, 1 yes)	−.41	.48	.67	−.86
NZDep Index 2013 (1 low–10 high)	.00	.08	1.00	.04
Education (0 low–10 high)	−.09	.08	.92	−1.12
Kessler-6	−.17	.40	.84	−.42
Felt belongingness	−.05	.28	.96	−.16
Social support	−.29	.22	.75	−1.33
Satisfaction with life	−.23	.22	.79	−1.06
Self-esteem	.06	.21	1.06	.26
Subjective health	.10	.16	1.10	.58
Height (m)	2.34	1.91	10.36	1.22
Weight (kg)	.01	.01	1.01	1.09
Disability/long-term illness (0 no, 1 yes)	.22	.48	1.25	.47

$R^2 = .70$, $se = .13$, $z = 5.25$, $p < .001$

* $p < .05$; ** $p < .01$; *** $p < .001$, $n_{lesbian/gay} = 306$

Table 5 Logistic regression model showing the correlates of identifying as asexual (versus bisexual)

	<i>b</i>	SE	OR	<i>z</i>
Intercept/threshold	4.89	4.08		
Age (years)	−.01	.02	.99	−.48
Woman (0 yes, 1 no)	−1.43	.58	.29	−2.48*
Cisgender (0 yes, 1 no)	3.15	1.37	23.35	2.31*
Māori ethnicity (0 no, 1 yes)	−.54	.58	.58	−.92
Pacific ethnicity (0 no, 1 yes)	−14.43	5.97	.00	−2.42*
Asian ethnicity (0 no, 1 yes)	.18	.85	1.19	.21
Parent (0 no, 1 yes)	−1.02	.50	.36	−2.03*
Partner (0 no, 1 yes)	−1.88	.50	.15	−3.79***
Religious (0 no, 1 yes)	.82	.46	2.27	1.80
Urban neighborhood (0 no, 1 yes)	−.58	.48	.56	−1.20
NZDep Index 2013 (1 low–10 high)	−.05	.08	.96	−.55
Education (0 low–10 high)	−.05	.08	.95	−.66
Kessler-6	−.24	.38	.79	−.62
Felt belongingness	−.09	.26	.92	−.35
Social support	−.29	.19	.75	−1.49
Satisfaction with life	−.07	.21	.93	−.35
Self-esteem	−.06	.23	.94	−.27
Subjective health	.13	.19	1.14	.69

Table 5 continued

	<i>b</i>	SE	OR	<i>z</i>
Height (m)	4.51	2.34	90.72	1.93
Weight (kg)	−.00	.01	1.00	−.15
Disability/long-term illness (0 no, 1 yes)	.69	.45	1.99	1.54

$R^2 = .82$, $SE = .14$, $z = 5.90$

* $p < .05$; ** $p < .01$; *** $p < .001$, $n_{\text{bisexual}} = 270$

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