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Asexuality: Classification and Characterization

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Abstract The term "asexual" has been defined in many different ways and asexuality has received very little research attention. In a small qualitative study ($N = 4$), individuals who self-identified as asexual were interviewed to help formulate hypotheses for a larger study. The second larger study was an online survey drawn from a convenience sample designed to better characterize asexuality and to test predictors of asexual identity. A convenience sample of 1,146 individuals ($N = 41$ self-identified asexual) completed online questionnaires assessing sexual history, sexual inhibition and excitation, sexual desire, and an open-response questionnaire concerning asexual identity. Asexuals reported significantly less desire for sex with a partner, lower sexual arousability, and lower sexual excitation but did not differ consistently from non-asexuals in their sexual inhibition scores or their desire to masturbate. Content analyses supported the idea that low sexual desire is the primary feature predicting asexual identity.

Keywords Asexual · Asexuality · Sexual arousability · Sexual desire · Sexual orientation

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Introduction

While researchers often assess sexual desire as one continuous dimension, individuals with very high or very low sexual desire typically are thought to be qualitatively distinct from others with "normal" sexual desire in clinical settings (cf. Haslam, 1995). The third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association, 1980) was the first to include psychosexual and, specifically, Inhibited Sexual Desire, disorders. Subsequently renamed "hypoactive sexual desire disorder" in the *DSM-IV-TR* (American Psychiatric Association, 2000), it is defined as a deficiency or absence of sexual fantasies and desire for sexual activity, which causes marked distress or interpersonal difficulty. The classification of sexual disorders in the *DSM* has recently come under criticism (Bancroft, Graham, & McCord, 2001; Basson et al., 2000; Tiefer, 2001; Vroege, Gijs, & Hengeveld, 2001), although sexual desire is still thought to play a fundamental role in the experience of sexuality (Brezsnyak & Whisman, 2004). The *DSM* acknowledges the problematic lack of normative age- or gender-related data on frequency or degree of sexual desire to delineate "deficient" sexual desire, and some have suggested cutoffs for defining normal levels of sexual desire (Riley & Riley, 2000; Schover & LoPiccolo, 1982). A group whose members identify as "asexual" has been appearing increasingly on the Internet (e.g., Jay, 2003), which brings a different perspective to what it might mean to have very low sexual desire. Asexuality raises questions concerning the role of "personal distress" in defining sexual desire problems. In this study, we attempt to better characterize the way that the label "asexual" is used and investigate what distinguishes those who identify as asexual from those who do not.

Implicit in the debate about what constitutes a "normal" level of sexual desire is an assumption that *some* level of

sexual desire is normative. A person with no sexual desire seeking guidance from a clinician may be diagnosed with hypoactive sexual desire disorder or sexual aversion disorder, or may be referred for medical evaluation. Indeed, a decrease in sexual desire can signal psychological or physiological disorders (e.g., depression, hypothyroidism), but is low or absent sexual desire necessarily associated with pathology? "Pathologizing" has been defined as assigning a diagnosis on the basis of cognitions or behaviors in the absence of substantive evidence that the cognitions or behaviors are maladaptive (Rubin, 2000). Currently, evidence does not suggest that cognitions and behaviors associated with asexuality necessarily signal a problem. All subsequent use of the term "asexual" in this article refers to those who identify as asexual.

One definition of "asexual" is lacking interest in or desire for sex (Editors of the American Heritage Dictionaries, 2000). Some have suggested that human asexuals are individuals who "do not experience sexual attraction" (Jay, 2003), who have never felt sexual attraction to "anyone at all" (Bogaert, 2004), or who have no "sexual interest" (Carlat, Camargo, & Herzog, 1997). In one study, participants were said to be asexual if they did not prefer either homosexual or heterosexual activities on a Sexual Activities and Preferences Scale (Nurius, 1983). Green (2000) described asexual transsexuals as having "a dearth of sexual attractions *or* behaviors" (p. 791, emphasis added). Women in lesbian relationships that may have had romantic components, but no sexual behaviors, have also been described as asexual (Rothblum & Brehony, 1993). It is unclear whether these characteristics are thought to be lifelong, or if they may be acquired.

Despite this lack of clarity, some researchers tend to characterize asexuality as negative. For example, they renounce the "asexuality" of older persons (Deacon, Minichiello, & Plummer, 1995), young lesbians (Zevy, 1999), and individuals with physical disabilities (Milligan & Neufeldt, 2001) or severe mental illness (Carmen & Brady, 1990). In summary, researchers have used the term "asexual" to refer to individuals with low or absent sexual desire or attractions, low or absent sexual behaviors, exclusively romantic non-sexual partnerships, or a combination of both absent sexual desires and behaviors, and they often consider the label pejorative.

Very little research has addressed asexuality. Recently, Bogaert (2004) used preexisting data from the U.K. National Survey of Sexual Attitudes and Lifestyles (Johnson, Wadsworth, Wellings, & Field, 1994) to suggest that approximately 1% of their adult sample was asexual. Asexuals were defined as those who endorsed the statement: "I have never felt sexually attracted to anyone at all." The study compared the asexual group ($N = 195$) with the remaining "sexual" participants ($N = 18{,}426$): those participants who reported that they had felt attracted to males, females, or both. Of the 15 variables investigated, many differentiated asexuals from non-asexuals. The variables predicting asexual classification included gender (more females than males), older age, marital status (more likely to be single), higher religiosity, short stature, low education, low socioeconomic status, poor health, later onset of sexual activity, later onset of menarche, fewer sexual partners, and less frequent sexual activity with a current partner. Analyses were also performed for each gender separately. Asexuality in women was predicted by age, socioeconomic status, education, race/ethnicity, height, menarche age, and religiosity. Asexuality in men was predicted by socioeconomic status, education, height, and religiosity.

This study had three primary limitations. First, only a single item defined individuals as asexual or sexual. The reliability of the item is unknown, its discriminant validity has not been established, and only limited evidence of convergent validity was provided. Second, by using preexisting data, constructs previously identified as potential features of asexual identity were not assessed. For example, sexual arousability was not available to assess. Additionally, the question used to identify asexuals assessed the direction of attraction, but there was no measure of the amount of sexual desire or attraction. Given the many authors who have defined asexuality in terms of a lack of sexual desire, this oversight neglects a potentially central aspect of asexual identity. Lastly, although Bogaert (2004) examined sexual behavior frequency as possible predictors of asexuality, there were no questions on solitary sexual activities, including masturbation. It was acknowledged that the study was primarily exploratory, required replication, and that future work should investigate those who self-identify as asexual.

The current research was designed to better characterize individuals who self-identify as asexual and to provide exploratory data for future hypothesis-driven research. In Study 1, a small group of self-identified asexuals participated in semi-structured, in-depth interviews that elicited information about their sexual development and their understanding and experience of asexuality. Based on the qualitative data derived from these interviews, hypotheses were formulated for a larger second study. In Study 2, a convenience sample of 1,146 individuals ($N = 41$ self-identified asexuals) completed online questionnaires assessing their sexual history, sexual excitation and inhibition, sexual desire, sexual arousability, perceived advantages and disadvantages of asexuality, and their understanding of the term "asexual." The survey included several standardized questionnaires, but also an open-ended, essay-response questionnaire, which was subsequently evaluated by content analysis. The qualitative and quantitative data for asexuals and non-asexuals were compared to test our predictions concerning which variables were most predictive of asexual status.

Study 1

Method

Participants

Participants were recruited from flyers posted in a Midwestern town in the United States. The flyer requested women or men "who identify themselves as asexual" to participate in an interview. The informed consent described the study as designed to inform a larger, future questionnaire study by consulting with those who think of themselves as asexual. The first author interviewed five individuals (3 women, 2 men). One of the male participants repeatedly asserted during his interview that he no longer thought that he was asexual, and his data were not included in analyses. Of the remaining four interviewees, they ranged in age from 31 to 42 years ($M = 35.5$, $SD = 5.07$). Two had completed some college and two held an undergraduate degree. All were currently single. On a 1 to 7 Likert scale, three reported being completely heterosexual and one reported a "2" for predominantly heterosexual. One reported experiencing orgasm in his lifetime while the remaining three were unsure if they had experienced orgasm.

Measures

Interviews were conducted individually. The semi-structured interviews[1] were taped and subsequently transcribed for content analyses. The broad content areas assessed included sexual development, understanding/definition of asexuality, and some additional areas covering what was thought would be important to address in a study on asexuality. The interviewees also completed two standardized questionnaires: the Sexual Desire Inventory (SDI; Spector, Carey, & Steinberg, 1996), and the Sexual Inhibition and Sexual Excitation Scales (Janssen, Vorst, Finn, & Bancroft, 2002).

Sexual Desire Inventory. The SDI was used to measure trait levels of sexual desire. Two self-report subscales are included in this measure: Solitary Sexual Desire (Solitary subscale), measuring an individual's desire for autoerotic sexual activity, and Dyadic Sexual Desire (Dyadic subscale), measuring an individual's desire for sexual activity with a partner. The Dyadic scale has been used as an index of "trait" sexual desire (Giargiari, Mahaffey, Craighead, & Hutchison, 2005). The same subscales emerged for men and women in psychometric analyses. Scores on the SDI are not dependent upon participants having had any sexual experience. For example, a respondent may have never experienced sexual intercourse, but could still have a high Dyadic Sexual Desire score. The two subscales correlated only .35, which the scale authors have interpreted to mean that the subscales capture different variance and may be thought of as measuring relatively independent constructs (Spector et al., 1996).

Subjective distress is a symptom required for many psychiatric diagnoses, including hypoactive sexual desire disorder (American Psychiatric Association, 2000). If asexuals were not concerned about their level of sexual desire, certain diagnoses would not be appropriate. Considering the importance of subjective distress in diagnostic classification schemes, we added the following two questions at the end of the SDI: (1) "How worried are you about your current level of sexual desire?" with the response options: "Not at all worried," "A little worried," "Somewhat worried," and "Very worried;" (2) "Would you see a health professional to help you with your level of sexual desire if you could?" with the response options: "Yes," "No," and "Unsure."

Sexual Inhibition and Sexual Excitation Scales. To assess individuals' propensity for sexual excitation and sexual inhibition, participants completed the Sexual Inhibition and Sexual Excitation Scales (Janssen et al., 2002). This 45 item self-report measure has three scales: sexual excitation (SES), sexual inhibition due to threat of performance failure (SIS-1, e.g., worry about losing an erection in intimate situations with a partner), and sexual inhibition due to threat of performance consequences (SIS-2, e.g., unplanned pregnancy).

The SIS/SES was developed for use in men. The version modified for use with women and used in this study was found to have a similar factor structure but there were significant gender differences in scores on all three subscales (Carpenter, Janssen, Graham, Vorst, & Wicherts, 2006). In the larger male study (Janssen et al., 2002), each of the three scales possessed acceptable internal consistency averaged across the three different samples in which they were administered (α: SES = .89, SIS-1 = .81, SIS-2 = .72). Correlations among the scales were low, suggesting that each captured unique variance. Test-retest reliability was adequate for each subscale (r: SES = .76, SIS-1 = .67, SIS-2 = .74).

Procedure

The interviews and questionnaires took approximately 2 hours to complete. Participants were compensated $20. Transcripts were reviewed independently by both authors. Several themes, presented below, were identified. These themes were used to generate more specific, testable predictions that were investigated in Study 2. The Institutional Review Board for the Protection of Human Subjects approved this study and the online questionnaire study described subsequently.

[1] An outline of the interview is available from the corresponding author upon request.

Results

The questionnaire scores of the interviewees are presented in Table 1. The means and SDs for scores on each scale of the SIS/SES from previous studies are reported for men (Janssen et al., 2002) and for women (Lykins, Janssen, & Graham, 2006) in Table 1. Unpublished SDI data (Prause, 2005) collected from 3,441 undergraduate university students in an online survey conducted to provide some data for comparison purposes are also provided (females: $N = 2224$, males: $N = 1217$; Age: $M = 19.26$, $SD = 3.86$).

In comparison to these unpublished data, the interviewees' scores on the Dyadic Sexual Desire scale appear low. Compared to the data for the Sexual Excitation and Inhibition Scales for men (Janssen et al., 2002) and women (Lykins et al., 2006), the interviewees had considerably lower levels of Sexual Excitation, and fairly similar scores on SIS-1 and SIS-2.

Several themes emerged in the interviews:

Theme 1: Experience and Labeling of Sexual Behaviors

There was considerable variation in the type and amount of sexual experience reported by the four participants. One of the three female participants had experienced very few sexual behaviors:

> Well, I've never kissed someone. I mean, I've kissed people, I suppose . . . but not in any sort of sexual way. I guess on occasion now I'll kiss a close friend, if I haven't seen them for a while or whatever, it's not a sexual thing.

This same woman reported a similar lack of experience of sexual dreams or fantasies:

> I would say I've never in my life had a dream or a fantasy, a sexual fantasy, for example, about being with another woman. So I can pretty much say that I have no lesbian sort of tendencies whatsoever. You would think that by my age I would have had some fantasy or dream of something, wouldn't you? . . . But I've never had a dream or a sexual fantasy about having sex with a man, either. That I can ever, ever remember.

The remaining three participants had engaged in sexual behavior of various kinds, although the descriptions they gave of these experiences suggested that they were not particularly pleasurable. For example, one woman, discussing her attempt at masturbating, stated:

> I can't attach pleasure together with it somehow. Was it physically pleasurable? I don't know. I just can't find the words.

One participant observed that a factor in her considering herself as asexual may have been not finding sexual activities enjoyable:

> I think those experiences contributed because I didn't find the act something I enjoyed. I guess I thought 'What's the big whoop, what everybody talks about? Why are they so interested in this thing? I don't get anything out of it, so what's the big whoop?' I started feeling this way in my 20's.

Another woman, who had tried masturbation several times because she had wondered if she might be able to reach orgasm, stopped because "I don't feel anything and sometimes it could get painful." Describing her experience of sexual intercourse with a man, this woman said:

> To me, it was still rather a painful experience and I didn't really enjoy having sex. He surely seemed to be enjoy[ing] it, so whenever he wanted it I didn't really refuse.

Lastly, one woman commented that watching sexually explicit films had little effect on her:

> The thing is, I could be watching a flat out sexual scene, like intercourse, and it would have no affect on me whatsoever. . . . I've often been like, "Oh, you're just covering this up or whatever," but I don't honestly feel anything. It's just boring . . . . it's not even remotely interesting to me. Or it doesn't [effect] me in any way I'm aware of.

Interestingly, two of the female participants who had engaged in masturbation talked about how they would not necessarily label this as a "sexual" behavior. Specifically, one of these two participants said "I would say masturbation doesn't necessarily make you sexual," while the other struggled to clarify her perspective saying "I can't explain it, it doesn't seem sexual."

Table 1 Comparison group and Study 1 participant characteristics

	Sample					
	Comparison				Study 1	
	Women		Men		(Interviews)	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
Dyadic sexual desire[a]	45.1	12.1	51.9	11.2	14.7	5.7
Solitary sexual desire[b]	6.9	5.2	12.9	5.7	6.0	2.9
SES[c]	50.6	8.6	57.2	7.9	35.8	5.6
SIS-1[d]	30.8	4.9	27.1	4.1	33.0	6.2
SIS-2[e]	31.4	4.7	27.7	4.8	36.1	6.0

[a] Absolute range = 8–70.

[b] Absolute range = 3–26.

[c] Sexual Excitation Scale; Absolute range = 30–80.

[d] Sexual Inhibition Scale 1; Absolute range = 14–50.

[e] Sexual Inhibition Scale 2; Absolute range = 11–42.

Theme 2: Definitions of Asexuality

Although the four participants varied in their degree of sexual experience, all nonetheless identified as being "asexual." The defining feature of asexuality for these individuals appeared to be a lack of sexual interest or desire, rather than a lack of sexual experience. One woman articulated this point succinctly:

> Now I can see that I experienced sexual things, but that doesn't make me sexual. I have no interest in it. So I think to me having an interest in sex is what makes you sexual, and you can be doing sexual things and not really be sexual, I think.

Another woman made a similar point:

> I sort of consider myself asexual because I have no desire. There's just no desire. I just really have no desire to go and have sex with someone. It's just the furthest thing from my mind. It seems to me to be boring.

A third participant believed that asexuals' lack of interest might have a biological basis:

> I think people are probably biologically programmed to be interested, to have interest in sex, and it just comes naturally. . . . I think for most people it's no problem to find a partner to engage in the act, but for somebody who's asexual, they don't have interest. They don't know how to get involved in the act, so they remain sexually inactive. Basically, I think it's the lack of sexual interest.

Theme 3: Motivation for Engaging in Sexual Behavior

Participants primarily discussed two factors that might motivate them to engage in sexual behavior, even if they did not experience sexual interest or desire. The first of these was curiosity. One woman said that she had engaged in sexual activity when she was younger because of curiosity:

> Umm, I was very curious about the opposite sex and having sex and stuff, things like that, when I was a teenager, but when it actually–in my 20's, I never really, I didn't find the act, I didn't get any pleasure from the act.

Two of the female participants talked about getting books on sexuality and engaging in masturbation although they had no "desire" to masturbate:

> I might have gotten a book on women's sexuality. I was like 'let's try to do some masturbation here and see if this goes anywhere.' And it's like, 'umm, no this is just boring.' So it was like that's the extent of it. It was just boring.

> I mean, I was intellectually curious about sexuality. I was like, 'Wait, shouldn't I be experiencing sexuality?' More like, like something like you should be experiencing and I had no desire to do it so I guess there was a time that I got a book . . .

The second factor that was perceived as a possible reason for engaging in sexual activity was being in a romantic relationship and feeling that the partner deserved or expected sex. As one woman stated:

> But I suppose if ever I got married to someone, I would sort of feel like, I want to sort of learn how to 'do' sex because it may be beneficial for this person with me. I mean, like most people have an expectation of sex in a relationship and so if I was really going to have a serious relationship with someone . . . they're going to expect it.

Another participant echoed this sentiment:

> I think if the person is asexual, he or she might engage in the act, probably if he or she has a partner, they may feel obliged to engage in the act. They might pretend to be like everybody else. They might fear being different from others, I think. Even if the person is asexual, if necessary, they might engage in the act just for the sake, because the partner asked.

Theme 4: Concerns about Asexuality

Of the four interviewees, all but one had questioned why they were asexual and had worried about whether they were "normal." One woman stated:

> I've actually wondered, like, is there something wrong with me? What is this business?

Another had worried about how the consequences of being asexual (e.g., not being in a relationship) made her different than other people:

> I often wonder why I am the way I am now and I think about not having married or not having a boyfriend or not seeing anybody. I find myself not really interested but at the same time I kind of worry for not being like everybody else, I guess.

This same participant also felt that she should make an "effort" to change:

> I feel that I should be normal, not that I do have a clear idea of what is normal . . . As for myself, I think I should seek out the opposite sex and be more involved in social life.

There was also some concern expressed about what other people might be thinking about them:

> I guess I'm wondering what other people are thinking and other people are feeling and am I the only one who's not doing this?

Only the male participant indicated a lack of concern about being asexual:

> I'm not worried about it or I'm not concerned about it. . . . My life is interesting enough and it's not really, um, a necessity.

Discussion

The four major themes that recurred in the interviews were participants' (1) history of sexual behaviors and what behaviors were perceived as sexual, (2) attempts to define asexuality, (3) lack of motivation for engaging in sexual behaviors, and (4) concerns about being different from others. Proposed definitions of asexuality that were reviewed earlier suggested that asexuals may experience a lower level of sexual motivation and less sexual activity than others, but some of the interviewees indicated a willingness to engage in unwanted, but consensual, sexual behaviors (for discussion of unwanted, consensual sex, see O'Sullivan & Allgeier, 1998). The interviews also suggested that asexuals interpret fewer behaviors as sexual, as compared to non-asexuals, possibly due to the lack of pleasure associated with them. The interviewees also expressed some concerns that something might be wrong with them or that they did not feel normal. Finally, none of the interviewees suggested that asexuals were either averse to, or afraid of, sex but instead that they were simply uninterested/bored by it. These observations led to several hypotheses that guided the selection of assessment instruments for Study 2.

Study 2

Several hypotheses were suggested by the Study 1 data. First, it was hypothesized that individuals who identify as asexual have a specific lack of sexual desire, although they may not necessarily lack sexual motivation. Sexual motivation has been described as incentive motivation (Agmo, 1999) or desire for sexual behaviors that is driven by external cues, such as the desire to satisfy a romantic partner (Basson, 2001). Sexual desire, in this study, is conceptualized as the cognitive (or "felt") component of sexual arousal (Everaerd & Both, 2001). Asexuals may be willing to engage in sexually *motivated* behaviors to achieve nonsexual goals without experiencing sexual *desire*. Consequently, it was predicted that asexuals would report markedly lower sexual desire than non-asexuals, although they may or may not differ in their amount of behavioral sexual experience. Sexual desire was assessed by the Sexual Desire Inventory (Spector et al., 1996; see description in Study 1). Amount of sexual behavior was indexed by the number of lifetime sexual partners and frequency of masturbation. Second, asexuals were predicted to be less inclined to experience sexual arousal due to a higher threshold to sexual arousal than non-asexuals. In Study 1, the self-identified asexuals reported engaging in behaviors that they recognized were considered sexual by most people (e.g., genital touching), but that they themselves did not associate with pleasurable sexual arousal. Sexual arousability has been defined as an individual's characteristic rate of approach to orgasm as a result of sexual stimulation (Whalen, 1966). If asexuals have a higher threshold to experience sexual arousal, their scores on scales assessing sexual arousability and related constructs should be significantly lower than non-asexual individuals. Sexual arousability was assessed by the Sexual Arousability Inventory (Hoon, Hoon, & Wincze, 1976) and the SIS/SES (Janssen et al., 2002; see description in Study 1).

Third, the interviews did not suggest that the participants were particularly concerned about their sexual functioning or about potential negative consequences of engaging in sexual activity, so we predicted that asexuals would not score higher on the two inhibition scales of the SIS/SES (Janssen et al., 2002) compared with non-asexuals. Specifically, SIS-1 includes fears such as losing sexual arousal too easily, worries about the sexual partner being satisfied, and concerns about performing well sexually. SIS-2 includes fears related to being caught having sex, experiencing negative consequences such as sexually transmitted infections, causing a partner pain, and having an appropriate partner (e.g., not too young).

Finally, the exploratory, qualitative portion of the survey included open-ended questions about the participant's definition of asexuality and the advantages and drawbacks of asexuality. These responses were first quantified using content analysis and then asexuals' and non-asexuals' responses were compared.

Method

Participants

Participants were recruited through convenience sampling from undergraduate psychology courses at a large university and by online advertisements (e.g., asexuality.org, kinseyinstitute.org). The introductory web page for the study did not mention asexuality, but informed potential volunteers that they would be asked about their "sexual feelings (or lack of feelings), sexual experience, and general personality."

Initially, 1,538 responses were obtained. Participants were excluded from analyses who did not complete all of the standardized questionnaires ($N = 357$), resubmitted identical or nearly identical responses ($N = 25$), or provided responses

that clearly indicated that they were not responding seriously ($N = 5$; e.g., "my dick is made of legos"). For participants who submitted nearly identical responses the data from the second submission were used. These resubmissions were considered to reflect participants thoughtfully changing their previous responses. The final 1,146 participants ($N = 511$ women, 635 men) were between the ages of 18 and 59 ($M = 21.7$, $SD = 6.3$). Those recruited through the psychology courses ($N = 732$) tended to be younger ($M = 19.77, SD = 2.65$) than those recruited through the Internet ($N = 414$; $M = 25.13, SD = 8.96$); similar numbers from each source identified as female ($N = 329$ (44.9%), $N = 182$ (44%), respectively), male ($N = 403$ (55.1%), $N = 227$ (54.8%), respectively), or other ($N = 0, N = 5$ (1.2%), respectively).

Measures

Participants completed five questionnaires online presented in the same order. Online surveys have been shown to elicit greater reporting of behaviors that are socially undesirable (e.g., Ross, Tikkanen, & Mansson, 2000) and are a preferred method for reaching small populations efficiently (Binik, Mah, & Kiesler, 1999; Birnbaum, 2004). Brief questionnaires were selected preferentially, other psychometric properties being similar, to increase the likelihood of completion of all questionnaires (Mustanski, 2001).

Sexual History Questionnaire (SHQ). Developed at The Kinsey Institute for Research in Sex, Gender, and Reproduction, the SHQ first collects general demographic and sexual information. Demographic questions included gender (male, female, other), age, education, and relationship status, and sexual information questions included number of lifetime sexual partners, number of lifetime sexual intercourse partners, masturbation frequency, worry about sexual problems, and orgasm consistency (% times reached orgasm when masturbating, % times reached orgasm when engaged in sexual activity with a partner). One question concerning attraction was similar to that used in the Bogaert (2004) study. It was worded slightly differently and asked "Would you describe the type of person you find most sexually attractive as:" and offered the response options "Only male," "Mostly male, but sometimes female," "Could be equally male or female," "Mainly female, but sometimes male," "Only female" or "None of the above."

The questions concerning the number of partners with whom they had experienced any sexual behaviors in their lifetime, and the frequency with which they masturbated, were used as indicators of "Sexual Experience." The "Lifetime sexual partners" measure was chosen to minimize the possibility that differences in attitudes toward sexual intercourse, as opposed to non-intercourse sexual behaviors, might underlie between-group differences. "Masturbation frequency" was selected to include sexual behaviors less subject to potential partner availability confounds. Several studies have noted difficulties with behavioral measures of sexual experience, including participants' difficulty understanding the behaviors described (Binson & Catania, 1998) and difficulty accurately recalling the behavior (e.g., Stone, Catania, & Benson, 1999). However, if sexual behaviors are rare experiences for asexuals, recall of infrequent events may be more accurate than if they had unusually high levels of sexual behaviors. "Sexual activity" was also defined in every question that asked about sexual activity as including "stimulating a partner's genitals or breasts with your hand or mouth, and intercourse" and a link through the word "sexual activity" further specified "By sex we mean ANY contact with genitals or with female breasts."

The SHQ also provided a text box for participants to type in their sexual orientation. The purpose of allowing participants to write in their sexual orientation was to compare it with their subsequent response to a multiple-choice question about sexual orientation. The question was "Which of these commonly used terms would you use to describe yourself?" followed by the response options: Heterosexual/Straight; Homosexual/Gay; Bisexual; Asexual. This was done to quantify how many of those individuals who would later select their sexual orientation as "asexual" in a multiple-choice item had self-generated the term "asexual" in this earlier questionnaire. From these questions, one can surmise how many people actively used the term to describe their sexual orientation spontaneously, as compared to those who used the term only when it was offered as an option.

Sexual Arousability Inventory. The SAI purports to measure "arousability." Participants indicated on a 7-point scale how arousing each of a list of 14 activities was to them (Form A short version; Hoon et al., 1976). Questions were generated by inductive methods (Burisch, 1984) then selected to achieve good internal consistency ($\alpha = .91$) and predictive utility (e.g., frequency of intercourse). The SAI can be completed by men or women, regardless of whether they currently have a sexual partner (Hoon & Chambless, 1998). Higher scores indicate that a person reports experiencing more sexual arousal to the list of potential sexual experiences. Recent research has supported the convergent and discriminant validity of the measure (Zucker et al., 2004).

Sexual orientation questionnaire. The final questionnaire was created for this study by the authors and included two multiple-choice questions, one multiple-selection question, and seven questions requiring write-in responses about sexual orientation development, feelings, and perceptions of asexuality. Responses to the three write-in questions relevant to definitions and perceptions of asexual identity were content analyzed (see "Data Analyses" section). The questions were (1) "What kind of sexual or other experiences do you expect a person to have had if they call themselves

asexual?" (2) "What drawbacks do you see for being asexual, if any?," and (3) "What benefits do you see for being asexual, if any?" One multiple-choice item was the follow-up question for the previous question that requested participants write in their sexual orientation. Allowing participants to self-identify their sexual orientation excludes other potentially important aspects of sexual identity (for review, see Sell, 1997) and does not account for label change over time (Diamond, 2005). However, since research supports the notion that self-identification indices typically covary strongly (Weinrich et al., 1993) and a main focus of this study was to begin to examine what self-identification as "asexual" means, self-identification of sexual orientation was used as the primary grouping variable.

Data analyses

Between-groups (asexual vs. non-asexual) comparisons were made, although the nature of the samples precludes the possibility of drawing strong inferences since participants may differ systematically from a more representative sample from the population. Regarding gender and age, the only significant demographic difference between the groups was age ($t(1144) = 3.04, p < .01$), so between group comparisons were controlled for age, when possible, and corrected comparisons are reported if age changed the significance of the relationship.

To determine the variables (sexual desire level, sexual arousability level, sexual behaviors, or sexual inhibition shown in Table 2) that best discriminated asexuals from non-asexuals, we conducted a binary logistic regression and Receiver Operating Characteristic (ROC) analyses. Variables were conceptualized as indicators of either sexual desire level (Dyadic Sexual Desire, Solitary Sexual Desire), sexual arousability level (Sexual Arousability Inventory, Sexual Excitation Scale), sexual behaviors (Number of lifetime sexual partners, Masturbation frequency), or sexual inhibition (SIS-1, SIS-2). A binary logistic regression was also conducted to identify the predictive utility in odds ratios of the variable(s) that best categorized individuals as asexual or non-asexual controlling for age. A substantial minority of participants had very low Solitary Sexual Desire scores. This violated the statistical assumption in binary logistic regression that the logit of this predictor was linear to the binary dependent variable (asexual identity). As a result, Solitary Sexual Desire was analyzed as a 4-category, dummy-coded variable reflecting face-valid groups who have desire for sexual activity that occurs (1) rarely or never, (2) one to a few times per month, (3) one to a few times per week, or (4) once daily or more.

ROC curve analyses supplemented the regression to assess the classification accuracy for each variable individually. These analyses could also be compared to the variables found to be most predictive by the binary logistic regression.

Table 2 Study 2 participant characteristics

	Asexuals[a]		Non-asexuals		Women[b]		Men	
	N	%	*N*	%	*N*	%	*N*	%
Women	26	63.4	604	54.7				
Completed college	18	43.9	159	14.4	543	86.5	422	83.1
Single/never married[c]	35	85.4	935	85	531	84.6	438	86.2
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Age	25.5	8.1	21.5	6.2	21.4	5.8	21.9	6.5
No. lifetime sexual partners[d]	10.2	33.5	11.5	18.9	9.4	15.2	13.9	23.8
Frequency masturbation[e]	3.7	2.0	4.5	1.9	3.5	1.8	5.6	1.3
Dyadic sexual desire	16.1	11.7	50.2	9.1	46.5	11.5	52.0	11.3
Solitary sexual desire	9.0	6.9	11.2	6.3	9.2	6.2	13.4	5.6
Excitation	36.0	11.3	53.0	8.1	51.0	9.2	54.2	8.1
SIS-1	33.5	6.9	30.2	5.8	31.3	5.3	29.1	6.3
SIS-2	32.1	8.5	30.3	5.0	31.9	5.0	28.5	4.6
Sexual Arousability Inventory	7.5	19.4	44.7	11.4	43.3	13.8	43.7	13.1

[a] Group status (asexual or non-asexual) was defined here by the forced-choice question concerning sexual orientation (not the written response).

[b] Five participants identified as "other" gender. None of these identified as asexual.

[c] Eight participants did not provide their marital status. All of these participants identified as non-asexual.

[d] All figures exclude 5 non-asexual participants who reported ≥ 500 partners as outliers. These 5 individuals reported 10,000, 10,002, 10,003, 9999, and 500 sexual partners. Results of the logistic regression analyses did not change when these participants were included.

[e] Scale endpoints were: 1 (Never masturbated) and 7 (4 times/week or more).

In ROC analyses, values on a given measure were evaluated for their ability to distinguish signal from noise as outlined in signal detection theory (Green & Swets, 1966). The false positive rate (those who the measure would classify as asexual who, in fact, were not asexual) was plotted against the false negative rate (those who the measure would classify as not asexual who, in fact, were asexual) for each value of the measure. In the ROC analyses sensitivity indicated the extent to which the variable accurately classified as asexual participants who indeed identified as asexual, and specificity indicated the extent to which a variable correctly classified non-asexuals as non-asexual. All of the possible cut points together formed a positive decelerating function. The area between this function and a linear function representing chance classification was described as the area under the curve (AUC). The AUC characterizes how accurately the sample was classified on a binary dependent variable (asexual or non-asexual) beyond chance level. In this study, the AUC measure quantified how well a measure correctly classified asexuals as asexual.

Qualitative content analyses were completed using methods outlined for textual analysis by Carpenter (2002) with the coding system criteria from Neuendorf (2002) using the software N6 (QSR International Pty Ltd., 2002). Initially three coders (the first author and two trained research assistants) independently developed coding trees for each question in the Sexual Orientation Questionnaire by reviewing 20 nonoverlapping, randomly selected participant's essays. The raters collaboratively integrated their coding trees for each question and drafted a codebook. Raters then randomly selected and independently coded 30 additional, non-overlapping cases. Following an open discussion of this revised codebook, adjustments were made to the coding trees. Finally, 201 participants were selected. These included all of those asexuals who provided at least one write in response ($N = 32$) and a randomly selected sample of non-asexuals ($N = 169$) who provided at least one write in response (see section on SOQ). Ninety-seven were coded by the first author alone, 84 by a trained undergraduate alone, and 20 cases were coded by both the first author and the trained undergraduate to assess continued coding agreement.

Results

Questionnaire analyses

Demographic characteristics

There were no significant differences in the proportion of individuals who identified as asexual based on gender (women, men, or "other") $\chi^2(2) = 1.35$, *ns* (see Table 2). Asexuals were significantly older than non-asexual individuals $t(1139) = 3.94$, $p < .01$, $d_{\text{unpooled}} = .63$. Also, asexuals and non-asexuals were predominantly single, and asexuals were more likely to have completed college $\chi^2(1) = 26.37$, $p < .01$, $r_{\phi} = .15$.

Sexual orientation

The first opportunity for participants to provide their sexual orientation occurred in the SHQ and their responses were coded as: Heterosexual, Homosexual, Bisexual, Asexual, Mixed, Unsure/Don't Know, None ("N/A"), or as Miscellaneous (e.g., "eyes"). The second opportunity to provide their sexual orientation occurred in the multiple-choice question in the SOQ. Of the 40 participants who identified as "Asexual" in the multiple choice question, 22 (53.7%) had written in their sexual orientation as "Asexual" earlier in the questionnaires (see Table 3). Of those who identified as "Heterosexual" in the multiple choice question, 933 (94.9%) had written in their sexual orientation as "Heterosexual" earlier in the questionnaires. Interestingly, of those 50 remaining who eventually chose heterosexual, but had written in something different initially, 24 (48%) of those had written responses that could not be coded (e.g., "eyes").

The first published study on asexuality defined asexuality as "having no sexual attraction for either sex" (Bogaert, 2004, p. 279). In the current study, participants were asked a similar question concerning their sexual attraction (see Methods). The predictive utility of this attraction question in classifying self-identified asexuals in this sample was evaluated. Only 17 of 41 (41.5%) self-identified asexuals in our sample reported that they were not attracted to men or women. Of the participants who reported no attraction to men or women ($N = 19$), 17 (89.5%) identified as asexual. Thus, the item used in the Bogaert (2004) study has high specificity, but poor sensitivity when self-identification as asexual was used as the criterion.

Table 3 Use of asexual as a sexual orientation[a]

	Responded asexual for multiple choice		Responded heterosexual for multiple choice	
Original orientation written in open response	*N*	%	*N*	%
Asexual	22	53.7	0	0.0
Heterosexual	6	14.7	933	94.9
Homosexual	1	2.4	7	0.7
Bisexual	1	2.4	7	0.7
Mixed	6	14.6	3	0.3
Unsure or don't know	0	0.0	6	0.6
None or N/A	4	9.8	3	0.3
Miscellaneous	1	2.4	24	2.4

[a]Indicates for which question method (open response or multiple choice) participants chose to identify as asexual.

Table 4 Predictors of asexual identity[a]

Construct / Measure	Odds ratio Ratio	95% CI[b] LL	UL	ROC AUC	SE
Control					
Age[c]	1.05	.98	1.13	.69	.05
Sexual desire					
Dyadic sexual desire	.85**	.80	.91	.96	.02
No/rare solitary desire (Ref)[d]					
Desire 1–3 times per month	3.52	.45	27.49		
Desire several times per week	14.37*	1.09	188.77		
Desire every day	106.15**	4.12	2736.46		
Sexual experience					
Number sexual Ps, either gender	1.00	.98	1.02	.75	.06
Masturbation frequency	.78	.47	1.30	.69	.05
Sexual aversion					
SIS-1[b]	1.07	.95	1.21	.66	.50
SIS-2[b]	.86**	.76	.97	.62	.56
Sexual arousability					
Sexual Arousability Inventory	.94*	.90	.99	.93	.03
Sexual Excitation	.91†	.82	1.00	.88	.04

[a]Includes the result of binary logistic regression and ROC analyses.

[b]95% CI is the 95% confidence interval showing lower limit (LL) and upper limit (UL).

[c]Keyed in opposite direction for ROC graph only.

[d]Dummy coded categorical variable.

$^{\dagger}p < .10, ^{*}p < .05, ^{**}p < .01$.

Sexual feelings and sexual behaviors

The Sexual Desire indicators (Dyadic sexual desire and Solitary sexual desire), a Sexual Arousability indicator (Sexual Arousability Inventory), and a Sexual Inhibition indicator (SIS-2) were significant predictors of asexual orientation in the binary logistic regression (see Table 4). All of the predictors together classified 98.8% of the participants accurately as asexual (73.7% correct) or not asexual (99.6% correct).

The results of the ROC analyses were broadly similar to the regression analyses (see Table 4 and Fig. 1). A Sexual Desire indicator (Dyadic sexual desire) and Sexual Arousability indicator (Sexual Arousability Inventory) were the best predictors of asexual versus non-asexual identity ($AUC = .96$ and .93, respectively). These were followed closely by the other Sexual Arousability indicator, the SES Scale ($AUC = .88$). Compared with the regression analyses, SIS-2 ($AUC = .62$) was less predictive of asexual status.

Concerns about sexual desire

Asexuals reported being no more worried about their level of sexual desire ($M = 1.63$, $SD = .89$) than non-asexuals, ($M = 1.40$, $SD = .69$), $t(1139) = 1.67$, *ns*. Furthermore, asexuals were not more likely than non-asexuals to want to speak with a health professional about their sexual desire level (56.1% of asexuals vs. 66.5% non-asexuals), $\chi^2(2) = 2.1$, *ns*.

Content analyses

Table 5 shows the results of the content analyses. The responses of the asexuals were compared with those of the non-asexuals. Although we did not have specific hypotheses about particular subcategories within the responses coded, chi-square values also are provided in Table 5.

Definition of asexuality

The five most common themes in participants' responses to what experiences they expected an asexual to have had included (1) a psychological problem, (2) a very negative sexual experience, (3) no/low sexual desire, (4) no/little sexual experience, and, (5) no differences from the experiences of non-asexuals. Of these, the most common

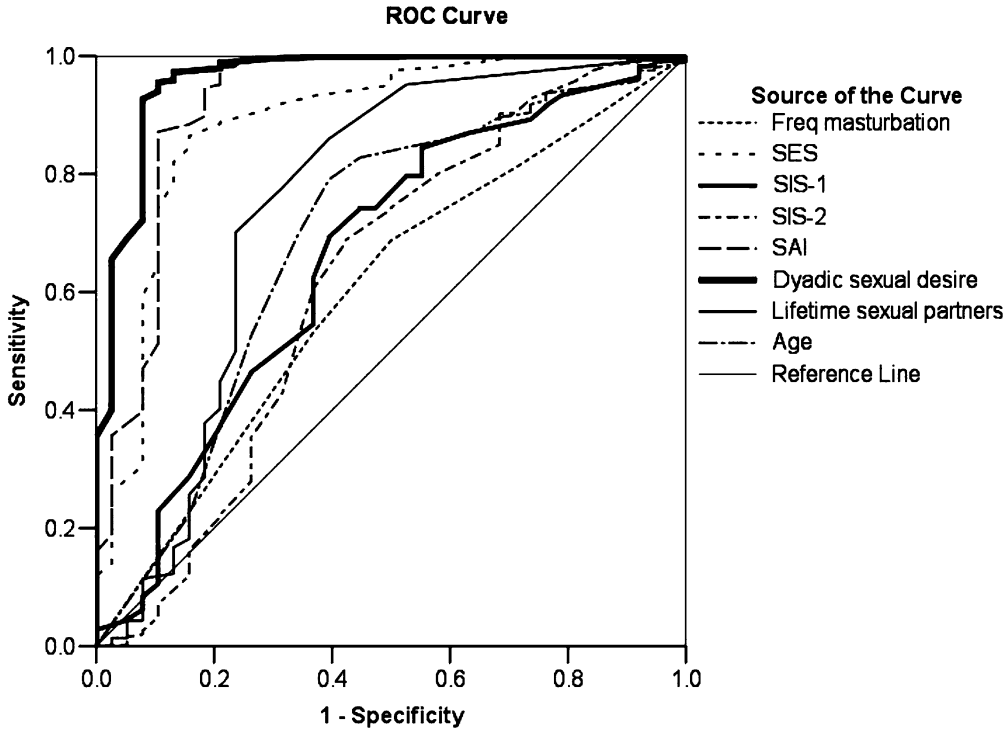

Fig. 1 Receiver operating characteristic curves plotted for individual measures classifying participants as asexual or not asexual

expectation reported was that asexuals would have low/no level of sexual desire. Non-asexuals were significantly more likely than asexuals to expect that asexuals would experience low/no sexual desire, $\chi^2(1) = 9.52$, $p < .01$, $r_{\phi} = .09$. In contrast, the expectation that asexuals would have low/no sexual experience was more often cited by asexuals than non-asexuals, although this difference was not statistically significant, $\chi^2(1) = .035$.

Of those participants who subsequently self-identified as asexual in a multiple-choice question, approximately half had also spontaneously written "asexual" as their sexual orientation in the earlier "write-in" question.

Table 5 Percentage of participants who gave response[a]

Qualitative responses	Asexuals ($N = 32$) %	*N*	Non-asexuals ($N = 169$) %	*N*	Pearson's chi-square χ^2	*p*
Expectations of asexuals' experiences						
Psychological problems (e.g., physically abused, have no friends)	15.6	5	6.5	11	3.05	*ns*
History of negative sexual experience (e.g., sexual trauma, sex without pleasure)	12.5	4	5.9	10	1.80	*ns*
Experience no/low sexual desire	37.5	12	43.8	74	9.52	.01
Experience no/low sexual experience	43.4	14	36.1	61	.04	*ns*
No different than anyone else	31.2	10	10.7	18	.43	*ns*
Benefits of asexuality						
Avoid intimate relationship problems (e.g., more meaningful relationships, less emotional pain)	37.5	12	20.1	34	4.61	.04
Lower health risks (e.g., no STI or pregnancy risks)	59.4	19	30.2	51	10.12	.00
Less social pressure (e.g., worry less about appearance, no pressure to pursue relationships)	18.7	6	4.7	8	8.16	.01
Benefits of free time (e.g., more relaxed, know yourself better)	37.5	12	8.3	14	20.39	.00
Drawbacks of asexuality						
Partner relationship problems (e.g., can't find willing partner, partner unsatisfied with sex)	37.5	12	16.6	28	7.40	.01
Means that something is wrong (e.g., depressed, crazy, in need of help, hormone problem)	56.2	18	22.5	38	15.26	.00
Negative public perception (e.g., people will think they are lying or weird)	28.1	9	5.3	9	17.15	.00
Miss positive aspects of sex (e.g., never feel that closeness, excitement of attraction)	6.2	2	26.6	45	6.24	.01

[a] A subset ($N = 201$) of responses were content-analyzed by counting the presence or absence of each theme in the essay response provided.

Advantages of asexuality

The four benefits of asexuality most commonly mentioned were (1) avoiding the common problems of intimate relationships, (2) decreasing risks to physical health or unwanted pregnancy, (3) experiencing less social pressure to find suitable partners, and (4) having more free time. A greater proportion of asexuals cited each benefit compared with non-asexuals. In particular, asexuals were much more likely to report "Lower health risks" and "Benefits of free time" as advantages of being asexual, as compared to non-asexuals.

Drawbacks of asexuality

The four drawbacks of asexuality stated most often were (1) problems establishing nonsexual, dyadic intimate relationships, (2) needing to find out what problem is causing the asexuality, (3) a negative public perception of asexuality, and (4) missing the positive aspects of sex. For all but one of the drawbacks mentioned, a greater proportion of asexuals cited each drawback as compared to non-asexuals. Asexuals were much more likely to report a drawback of asexuality as needing to find out what problem was causing the asexuality. Non-asexuals, however, were more likely to mention missing the positive aspects of sex as a drawback of asexuality.

Discussion

This exploratory study attempted to better characterize individuals who identify as asexual and to provide exploratory data for future research. Asexuals were most clearly distinguished from non-asexuals by their lower/absent scores on the Dyadic Sexual Desire subscale, lower scores on the Solitary Sexual Desire subscale, and lower scores on the Sexual Arousability Inventory. Other variables that differentiated the groups less consistently included lower scores on SES (propensity to become excited sexually) and SIS-2 (inhibition due to threat of performance consequences). Also, asexuals did not express any greater interest in talking to a health professional about their low sexual desire, despite greater concern about their level of sexual desire. Finally, in the qualitative analyses, both the asexual and non-asexual groups cited no/low sexual desire and no/low sexual experiences most frequently as the two primary defining features of asexuality.

The fact that neither Sexual Inhibition scale was a strong predictor suggests that self-identified asexuals were not particularly sexually fearful, but that they had a lower excitatory drive. The lower excitatory drive was exemplified by their lower scores on the Dyadic Sexual Desire, Sexual Excitation, and Sexual Arousability Inventory questionnaires. This pattern of findings suggests several conclusions. First, asexuals were not well-described as motivated by avoidance, as relevant in social phobias and sexual aversion difficulties. Second, the results support the idea that excitation and inhibition can be conceptualized as relatively independent factors affecting sexual arousal (Bancroft, 1999). Finally, when assessing an individual's sexual desire level, it is possible that sexual excitation may be more relevant than sexual inhibition.

Self-identified asexuals exhibited similar SIS-1 scores and lower SIS-2 scores compared to non-asexuals. SIS-1 reflects concerns about sexual performance (e.g., erectile problems) while SIS-2 reflects concerns about performance consequences (e.g., contracting sexually transmitted infections, being caught having sex, etc.). The qualitative data support this concern, as asexuals were more likely to mention "avoiding disease" as a benefit of their asexual status. Both asexuals and non-asexuals may face common baseline difficulties in establishing intimate sexual relationships, hence not differing in their SIS-1 scores, but self-identified asexuals may feel that their low desire confers a lesser risk of subsequent sexual consequences. For instance, high sexual arousal may potentiate sexual risk taking (Canin, Dolcini, & Adler, 1999; Strong, Bancroft, Carnes, Davis, & Kennedy, 2005). This may occur directly, through limiting attention paid to safety cues (e.g., as in alcohol myopia; Steele & Josephs, 1990), or indirectly through the reduced use, for instance, of alcohol to promote feelings of sexual arousal by self-identified asexuals (Brown, Goldman, Inn, & Anderson, 1980). In other words, asexuals may have lower SIS-2 scores because they feel less vulnerable about being carried away by feelings of sexual arousal into practicing unsafe sex since they do not experience strong sexual excitation or desire.

These data did not replicate several demographic and sexual experience predictors of asexual status reported by Bogaert (2004). First, we did not find a gender or relationship status difference between sexuals and asexuals. Given the younger age of our non-asexual sample, it is possible that they had less time available to have experienced a longer-term relationship. It is noteworthy that Bogaert reported that 44% of the empirically-defined asexuals in his sample were currently in or had been in long-term (cohabiting or married) relationships. Also, it is surprising that no gender differences emerged in this study given that women tend to report less sexual desire than men report on average (Beck, 1995). Second, these data indicated that a higher percentage of asexuals had completed at least a college degree as compared to non-asexuals, and this was not accounted for by the group age difference. The Bogaert study found the opposite. Third, there was no significant difference in the lifetime number of sexual partners reported by asexuals and non-asexuals, whereas in the Bogaert (2004) study asexuals reported fewer

sexual partners. Finally, these data suggest that the item used in the Bogaert (2004) study to identify asexuals likely failed to identify many individuals who would have chosen to self-identify as asexual given the opportunity. Whatever the explanation for the divergent findings, it is clear that further research is needed on the correlates of asexuality.

This study utilized a multi-method approach combining qualitative and quantitative data. Collecting qualitative or quantitative data consistently represent some tradeoff in objectivity for phenomenological detail, and research that collects both qualitative and quantitative data has been recommended to maximize the objectivity and interpretability of data (Gray & Densten, 1998; Hyde, 2001). In our case, the qualitative data were helpful in understanding several differences found in the quantitative data. For instance, both groups of participants reported that asexuals would differ most from non-asexuals by their no/low sexual desire and their no/low sexual experience, but the quantitative data suggested that asexuals actually differed most in their sexual desire and sexual arousability levels, and not the amount of their sexual experience. It is possible that the concept of "arousability" was not identified as a theme in the qualitative data because it is simply not a term in common use by the lay public. Non-asexuals might believe that asexuals would not be sufficiently aroused to want to engage, or be able to engage, in sexual behaviors.

A second example of how the use of multi-method data collection is helpful is in understanding why asexuals were no more worried about their level of sexual desire and no more likely to want to speak to a health professional about their level of sexual desire than non-asexuals. This could simply reflect differences in conservatism in not wanting to discuss "inappropriate" personal sexual health with health professionals (e.g., sexuality concerns around pregnancy; Alteneder & Hartzell, 1997). Asexuals' written responses provided another possible explanation. While asexuals were significantly more likely to respond that being asexual meant that there was something wrong with the asexual person or that they had more relationship problems, they were also more likely to respond that there was a negative public perception of asexuals as compared to non-asexuals. Specifically, asexuals also frequently explained that what was wrong with asexuality was something outside of their control (e.g., "something wrong genetically," "hormone problem"). As discussed earlier, there is an expectation that a person *should* experience sexual desire, or they may be characterized as having "Hypoactive Sexual Desire Disorder" or "Sexual Aversion Disorder." Asexuals may feel pressure to conform to this expectation, but frame the abnormality as a problem with the social expectations (or their physical health), which is out of their control (Rubin, 2000). This has implications both for asexuals who may seek treatment and for understanding disorders of sexual desire.

The level of concern of asexuals was particularly relevant with regard to implications for diagnostic classification (Cole, 1993). As mentioned previously, personal distress is one of the criteria for diagnosing hypoactive sexual desire in the DSM-IV-TR (American Psychiatric Association, 2000). If personal distress is primarily due to conflicts with social expectations or worry that a physical problem exists, then a psychiatric diagnosis implying abnormality may exacerbate concerns in an asexual individual. While behavior that is statistically abnormal may be problematic without a person's full recognition of when they are behaving abnormally, as in schizophrenia, it remains to be determined to what extent asexuality is problematic in the absence of individual, personal distress.

This study had four primary limitations. First, the sample was not randomly selected. In particular, the non-asexual sample was comprised mainly of younger students and the asexual sample was comprised primarily of individuals from the Internet, including asexuality sites. This difference could have caused the lack of difference in relationship status between asexuals and non-asexuals. Non-asexuals were younger and perhaps less likely to be partnered as a result of insufficient time to locate a suitable partner rather than as a result of their non-asexual identity. Second, the online format of Study 2 introduced limitations. Despite the considerable advantages of online questionnaires, including increasing evidence that samples are not as select as was once feared (Birnbaum, 2004), online studies also have disadvantages; for example, they may be completed in undesirable circumstances (e.g., with a partner observing), and the anonymity may encourage deceptive responses. However, steps were taken to minimize the likelihood of these problems. For example, to encourage participants to complete the survey in private, the highly personal nature of the study was mentioned in introductory web pages. The effects of obvious deception and/or incomplete responses were reduced by thorough data cleaning. The advantages of the online format in reaching this likely small population and encouraging the reporting of socially undesirable sexual behaviors were judged to outweigh these disadvantages. Third, as the interviews in Study 1 were in-depth and lengthy, only four participants were interviewed. Given the rich data derived from these interviews about self-identified asexuals, future qualitative studies may be warranted. Finally, the measures of sexual behavior (lifetime sexual partners and masturbation frequency) are subject to influences that may confound their interpretation (e.g., availability of sexual partners, abusive sexual experiences, etc.).

This study suggests a way of conceptualizing asexuality that leads to clear, testable hypotheses for future research. First, asexual self-identification was best predicted by low excitatory processes, but not necessarily high inhibitory processes. It may be that behavioral activation, as characterized

by Gray (1987), is generally low among asexuals, or that depressogenic types are prevalent amongst self-identified asexuals. However, correlations between scales measuring *general* behavioral inhibition and activation and *sexual* excitation and inhibition have been low (Graham, Sanders, & Milhausen, 2006; Janssen et al., 2002). Animal evidence also argues against this possibility. Sexually low-performing rams with low sexual incentive motivation appear strongly motivated in other domains, such as aggression in feeding (e.g., Alexander, Stellflug, Rose, Fitzgerald, & Moss, 1999).

Second, asexuals cited both more benefits and drawbacks of asexuality than non-asexuals. This simply may reflect a more complex consideration of the identity over time. However, it also may be that individuals who identify as asexuals face challenges unrecognized by others and may counteract those challenges by perceiving additional benefits. Third, asexuals appear to have similar levels of sexual behaviors to non-asexuals. Investigating emotionally intimate partner variables separately from sexuality variables could elucidate this finding. For example, asexuals may be engaging in unwanted, but consensual sex for the purpose of maintaining an intimate relationship with a sexual partner (O'Sullivan & Allgeier, 1998). The reason for the lack of difference is unclear and, given the nature of the sample, warrants replication.

Finally, after a better understanding of the asexual construct is developed, it may be useful to test the physiological and psychophysiological correlates of asexuality. These include, but are not limited to, sexual psychophysiological responses to sexual stimuli, neurological evidence of differential intensity affective experience (Cuthbert, Schupp, Bradley, Birnbaumer, & Lang, 2000), hormone profiles abnormalities, or generalized, non-sexual motivated behaviors (for discussion, see Bindra, 1959). Indeed, a number of physical factors can affect feelings of sexual desire including menstrual phase (e.g., Hedricks, 1994), physical fatigue due to recent childbirth (Hyde, DeLamater, & Hewitt, 1998), or illness (Meuleman & van Lankveld, 2005), and central dopamanergic dysregulation in women (Bechara, Bertolino, Casabe, & Fredotovich, 2004) and men (Montorsi et al., 2003, as related to erectile functioning).

One direction that seems particularly promising is conceptualizing asexual development as a form of kindling. Kindling can be defined as sensitization to a previously sub-threshold stimulus. Non-copulating rats appear not to differ from copulating rats in baseline titers of testosterone (Alexander et al., 1999; Damassa, Smith, Tennent, & Davidson, 1977), and cannot be induced reliably to perform sexually by the introduction of supraphysiological testosterone (Damassa et al., 1977). Copulating rats have been shown to have increased fos responses in the MPOA following vomeronasal stimulation with estrous female bedding, whereas non-copulating rats do not show this change (Portillo & Paredes, 2004). The present study data support the idea that human asexuals may have a higher excitatory threshold for sexual arousal. Future research concerning physical factors might focus on exploring generalized, cognitive "kindling" differences in those who do and do not identify as asexual. Although physiological mechanisms appear unlikely to completely explain asexuality, evidence of some biological basis for asexuality also may offer asexual individuals legitimacy, a conceptual framework for their feelings, and reduce the extent to which others blame them for assuming the identity (Irvine, 1993).

To our knowledge, this was the first study to investigate the defining features of individuals who self-identify as asexual. As such, it raises a number of empirical and theoretical questions about asexuality as well as about "normal" sexual functioning. Given these new questions and the paucity of research concerning asexuality, future research should continue to explore this population.

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