Arch Sex Behav
DOI 10.1007/s10508-016-0802-7

TARGET ARTICLE

Asexuality: Sexual Orientation, Paraphilia, Sexual Dysfunction, or None of the Above?

Lori A. Brotto[1] · **Morag Yule**[2]

Received: 30 December 2015 / Revised: 15 June 2016 / Accepted: 27 June 2016

Abstract Although lack of sexual attraction was first quantified by Kinsey, large-scale and systematic research on the prevalence and correlates of asexuality has only emerged over the past decade. Several theories have been posited to account for the nature of asexuality. The goal of this review was to consider the evidence for whether asexuality is best classified as a psychiatric syndrome (or a symptom of one), a sexual dysfunction, or a paraphilia. Based on the available science, we believe there is not sufficient evidence to support the categorization of asexuality as a psychiatric condition (or symptom of one) or as a disorder of sexual desire. There is some evidence that a subset of self-identified asexuals have a paraphilia. We also considered evidence supporting the classification of asexuality as a unique sexual orientation. We conclude that asexuality is a heterogeneous entity that likely meets conditions for a sexual orientation, and that researchers should further explore evidence for such a categorization.

Keywords Asexuality · Sexual orientation · Paraphilia · Sexual dysfunction

Introduction

Prior to 2004, asexuality was a term that was largely reserved for describing the reproductive patterns of single-celled organisms. Since then, however, empirical research on the topic of human asexuality—often defined as a lack of sexual attraction—has grown. Estimates from large-scale national probability studies of British residents suggest that approximately 0.4 % (Aicken, Mercer, & Cassel, 2013; Bogaert, 2013) to 1 % (Bogaert, 2004, 2013; Poston & Baumle, 2010) of the adult human population report never feeling sexually attracted to anyone, with rates closer to 2 % for high school students from New Zealand (Lucassen et al., 2011), and up to 3.3 % of Finnish women (Höglund, Jern, Sandnabba, & Santtila, 2014).

Although the definition of asexuality varies somewhat across these studies, "lack of sexual attraction" is the generally accepted definition by the Asexuality Visibility and Education Network (AVEN) (www.asexuality.org). It is important to note, however, that individuals can experience sexual attractions that are not directed towards others—an idea that we elaborated on more fully later in this article. When we refer to asexuals in this article, we mean "self-identified asexuals" as self-identification is the criterion used most often by researchers studying asexual samples. Interestingly, the definition of asexuality on AVEN has changed over time as awareness about asexuality has increased. There is recognition that some asexuals can experience sexual attraction in isolated instances, or with particular individuals, and this would be included under the "Gray A" spectrum.[1] The creation of AVEN in 2001 by David

✉ Lori A. Brotto
lori.brotto@vch.ca

[1] Department of Obstetrics and Gynaecology, University of British Columbia, 2775 Laurel Street, 6th Floor, Vancouver, BC V5Z 1M9, Canada

[2] Department of Psychology, University of British Columbia, Vancouver, BC, Canada

[1] AVEN defines Gray A as the community of individuals who fall somewhere in the spectrum between asexual and sexual. Some, within AVEN, also refer to this as the "Ace umbrella."

Published online: 19 August 2016

Jay has had a noteworthy effect on cultivating a sense of community[2] for those contemplating their asexual identity, for housing the largest body of education and information pertaining to the experiences of asexual individuals, and for serving as a hub for research participants to the academic community. In many instances, hypotheses about the correlates and characteristics of asexuality, that became the focus of future research, were first discussed on the AVEN forum by members. As of December 2015, there were approximately 120,000 registered members on AVEN around the globe. The relationship between AVEN and researchers is bidirectional. In particular, discussions on the forum often pertain to the published research on asexuality and to questions that researchers have posed to asexual individuals. For example, Bogaert's questioning in regard to asexuals' fantasies triggered a lively exchange on the forum about the contents of asexuals' fantasies (Bogaert, 2015, personal communication). For the past few years, AVEN has also carried out an annual Community Census, intended to describe the demographic characteristics of AVEN members. The 2014 census, which was based on over 14,000 respondents (10,000 of whom were self-identified asexuals; Ginoza, Miller, & Members of the AVEN Survey Team, 2014), highlighted considerable diversity in the experiences and identities of those identifying as asexual. This diversity needs to be borne in mind as we consider the research findings that follow, with the caveat that any conclusions drawn may not pertain to the entire population who identify as asexual.

Early reactions to the flurry of media attention and the existence of asexuality were largely negative, particularly from prime-time talk show figures. For example, Williams (2007) doubted David Jay's ability to resist having sex "when he saw a girl walk out of a room in lingerie" and Carlson (2006) reported on national television that after a few sexual encounters, an asexual would likely grow to love sex, in the same way that his initial aversion to goat cheese transformed into indulgence after a few ingestions. The opinions among some sex therapists were also negative, with claims that asexuality is likely a manifestation of trauma, personality disturbance, or problematic attachments early in life (Asexuality on 20/20, 2006). Given the centrality of sexual attraction as a core feature of being human, critics have also argued that asexuality is a manifestation of some underlying psychopathology (Johnson, 1977), or that it represents an extreme variant of a sexual desire disorder (Childs, 2009; Westfall, 2004). Some have suggested that at least a subset of asexually identified individuals may be paraphilic (Bogaert, 2006).

Over the past 10 years, there has been a burgeoning of empirical studies on asexuality, and there are now data available to position scientists and theoreticians to be able to answer some of these intriguing questions about the nature of asexuality. The objective of this brief review is to review and critically evaluate data which address some of the putative classifications of asexuality, specifically as to whether asexuality might be a psychiatric condition (or symptoms of one), a sexual dysfunction, or a paraphilia. Although we recognize that these possible categories of asexuality are not mutually exclusive, and that one may have a mental health concern, a sexual dysfunction, and a paraphilia simultaneously, we chose to consider each of these separately, as a possible explanation for asexuality given that such an intellectual exercise may help to consider the phenomenon of asexuality more deeply. Ultimately, like Bogaert (2006, 2012a), we surmise that the available evidence points to asexuality being best conceptualized as a unique sexual orientation.

Asexuality as a Mental Disorder

Could asexuality represent a symptom of a mental disorder (or a mental disorder itself)? Furthermore, could distress associated with asexuality be part of a psychiatric condition, or is it a by-product of societal judgments towards asexuality? The available science is equivocal with regard to the association between asexuality and psychological/psychiatric symptoms. Nurius (1983), who defined asexual individuals as those who chose to not have sex, found small but statistically significant higher rates of depression and self-esteem problems among the asexuals compared to the other sexual orientation groups, but group differences in self-esteem disappeared when controlling for background characteristics and sexual attitudes. Larger quantitative studies have found that self-identified asexual individuals had the same rates of depression as population norms (Brotto, Knudson, Inskip, Rhodes, & Erskine, 2010), but were more likely to endorse symptoms of Social Withdrawal on a self-report screener for personality symptoms, and to report more interpersonal difficulties in general (Yule, Brotto, & Gorzalka, 2013). These researchers also found that asexual individuals were more likely to report symptoms of anxiety, and to endorse more symptoms of suicidality compared to sexual participants. In a follow-up qualitative investigation with a subgroup of asexual individuals who participated in a larger quantitative study (Brotto et al., 2010), seven out of the 15 participants interviewed reported believing that they had traits of Schizoid Personality Disorder, and several discussed the association between Asperger Syndrome and asexuality, which had been discussed at length by members on AVEN. Further support of this potential association comes from a study by Ingudomnukul, Baron-Cohen, Wheelwright, and Knickmeyer (2007), who found that 17 % of asexual women met criteria for an autism spectrum disorder, and conversely, there is evidence of a higher rate of asexuality among individuals on the Autism Spectrum compared to a community control group (Gilmour, Schalomon, & Smith, 2012). This figure is in comparison to approximately

[2] As the reviewer pointed out, it is noteworthy that the drive to seek out others with a similar disinterest in sex is so strong, and this highlights the centrality of sexuality in human experience. It may also be that such a strong sense of community helps to challenge perceived stigma against asexuality.

14.7 per 1000 children in the general population meeting criteria for an Autism Spectrum condition (Developmental Disabilities Monitoring Network Surveillance Year 2010 Principal Investigators, 2014). Of note, the association between asexuality and either Asperger Syndrome or autism spectrum has been based on cross-sectional study designs, and although several members of AVEN endorse the link between asexuality and Asperger/Autism spectrum, large-scale studies further elucidating this relationship must be performed.

Some have also suggested that the lack of sexual attraction may represent a reaction to trauma, or an aversive or disgust reaction to viewing the genitals (Asexuality on 20/20, 2006; for a discussion, see Gressgärd, 2013). Neither of these hypotheses have been supported by quantitative data (Brotto et al., 2010); however, one qualitative study found considerable variability in asexual participants' reactions to viewing genitals, with some having a sex-neutral view, and others being more sex averse (Van Houdenhove, Gijs, T'Sjoen, & Enzlin, 2015a). Whether these reports of aversion towards genitals represent an anxious and/or phobic-like reaction to sex and genitals, or reflect an indifference to them, was not fully explored in the study. On the other hand, at least some asexual individuals reported appreciating the artistic value of genitals, as in Michelangelo's statue of David, even though seeing them did not trigger sexual attraction or desire (Brotto et al., 2010).

Although there is some evidence for higher rates of psychiatric symptoms in asexual individuals, it has been suggested that at least some of those symptoms may be explained by asexuals' tendency to experience stigmatization and dehumanization. For example, when college students were provided with definitions of different sexual orientation groups, asexual individuals received the most negative evaluations, and were endorsed as the least likely to possess "human nature traits" (MacInnis & Hodson, 2012). Furthermore, participants were least likely to report wanting future contact with asexual individuals compared to the other sexual orientation groups, and the findings were not accounted for by asexual individuals' greater likelihood of being single. Therefore, similar to the experiences of lesbian, gay, and bisexual individuals (e.g., D'Augelli & Hershberger, 1993; Toomey, Ryan, Diaz, Card, & Russell, 2010), it is likely that the distress and psychological symptoms experienced by asexual individuals is secondary to their experience of prejudice and discrimination, rather than asexuality being the result of an underlying psychological disturbance. As a result, elevated levels of distress, when they do exist among asexual individuals, should not be used to pathologize asexual individuals or asexuality more broadly (Bogaert, 2006; Yule et al., 2013). Like Prause and Graham (2007), we believe that asexuality should not be classified as a psychiatric diagnosis, nor be seen as a symptom of one. Instead, we agree with Gressgärd (2013) who urges for discussions that move from pathology to identity. Of course, the putative relationship between asexuality, Asperger Disorder, and Autism Spectrum conditions suggests that for some asexuals, their distress arises from these mental health conditions, rather than from the asexuality itself.

Asexuality as a Sexual Dysfunction

Could asexuality be a symptom of a sexual dysfunction (defined as a clinically significant disturbance in a person's ability to respond sexually or experience sexual pleasure) (American Psychiatric Association, 2013)? In other words, could a lack of sexual arousal to sexual triggers underlie and account for asexual individuals' lack of attraction? This conclusion would be in line with incentive motivation models which propose that motivation for sexual activity is triggered by sexual arousal first (Both, Everaerd, & Laan, 2007). To explore whether sexual arousal was different between asexual and sexual participants, genital sexual response was tested in a small group of asexual women in response to sexually explicit erotic films. Although the asexual women self-reported no increase in desire for sex after viewing the erotic films, their genital response, as measured with a vaginal photoplethysmograph, did not significantly differ from the other sexual orientation groups (Brotto & Yule, 2011). Whether genital arousal patterns of asexual men differ from other sexual orientation groups is unknown, and is currently the subject of at least two ongoing studies—one collaboration between the University of British Columbia and Brock University, and a second at Northwestern University.

Disorders of sexual desire, such as the DSM-5's Female Sexual Interest/Arousal Disorder (FSIAD), bear resemblance to asexuality in that they both pertain to a lack of interest in sex. Indeed, many have speculated that asexuality represents the polar lower end of the sexual desire continuum, and thus likely falls within the sexual dysfunction umbrella. However, one key difference between asexuality and a sexual desire disorder is that those experiencing the latter are required to experience clinically significant personal distress, whereas asexual individuals' lack of sexual attraction is egosyntonic, and as reviewed earlier, when distress is present, it is typically in reaction to perceived social disapproval of their asexual status, rather than a personally derived distress. Moreover, the goal in treatment for the person with a sexual desire disorder is to increase their interest in sex, whereas an asexual person in therapy would be more likely to benefit from a focus on self-acceptance (Hinderliter, 2013), or on developing skills around navigating relati onships, especially if their partner was sexual and motivated to have sex. In the DSM-5, the accompanying text for the sexual desire disorders (both FSIAD in women and hypoactive sexual desire disorder [HSDD] in men) explicitly mentions asexuality as an exclusion criterion.

To further explore similarities and differences between a sexual desire disorder and asexuality, we recruited 400 men and women to an online study and administered a battery of vali

dated questionnaires assessing sexual behaviors and response. Participants who met diagnostic criteria for HSDD were significantly more likely than asexuals to be in a relationship (80 vs 22 %), to masturbate (88 vs 73 %), and to have engaged in kissing and petting behaviors (84 vs 36 %) (Brotto, Yule, & Gorzalka, 2015). After controlling for age, asexual individuals were also significantly more likely to have never engaged in sexual intercourse (78 vs 12 %), and to have never had a sexual fantasy (38 vs 16 %) compared to those with low desire. A logistic regression predicting to group found that (higher) sex-related distress, (higher) levels of sexual desire, (partnered) relationship status, and (lower) alexithymia scores (i.e., inability to identify and express emotions) significantly predicted to the HSDD group over the asexual group.

Taken together, these findings suggest that asexuality is not likely to fit under the sexual dysfunction umbrella, at least not as a sexual desire disorder, nor as a disorder of physical sexual arousal response (at least among women). In support of this, another qualitative study found that asexual individuals were not worried about their level of sexual desire, nor did they wish to speak to a health professional about their lack of attraction (Prause & Graham, 2007). Whereas a diagnosis of a sexual dysfunction is made by a trained clinician, one need not have a third party assign the label asexual; rather an individual's own identification with asexuality is deemed sufficient for its adoption (Hinderliter, 2013). Of course, this does not rule out the possibility that at least some of the individuals diagnosed with lifelong HSDD may not better be classified as asexual, given that in the study by Brotto et al. (2015) there were few differences between those with lifelong HSDD and asexuals on measures of sexual behavior and sexual desire. We have also previously suggested that overlap between lifelong HSDD and asexuality may point to the fact that these individuals are part of the same group, except that they differ in self-reported distress. Clearly, fuzzy boundaries between individuals with lifelong HSDD and asexuality warrants further investigation to decipher whether these are, in fact, distinct or the same groups.

Asexuality as a Paraphilia

Paraphilias are defined as atypical sexual attractions that are not, by themselves, considered a disorder (American Psychiatric Association, 2013). To meet criteria for a paraphilic disorder, the DSM-5 requires that individuals with paraphilic interests experience significant personal distress or that their desires/behavior creates distress for someone else, or involve an unwilling partner. Given that asexual individuals' sexual interests fall outside of the experiences typical of most people, Bogaert (2006, 2012a) wondered whether asexuality is a form of paraphilia. The finding that asexual individuals masturbate—albeit at a lower frequency than sexual individuals—with approximately half of asexual individuals masturbating monthly and over 80 % of sexually identified individuals masturbating at least monthly (Yule, Brotto, & Gorzalka, 2014a, but see Yule, Brotto, & Gorzalka, in press for an exception for men), suggests that asexual individuals may possess a non-partner-oriented sexual desire underlying their masturbatory behaviors. There may be lustful feelings that are diffuse with no direction toward or connection to others. A qualitative exploration into the motivations for masturbation revealed at least some asexual individuals to liken their behavior to "cleaning out the plumbing" (Brotto et al., 2010; Prause & Graham, 2007; Scherrer, 2008), and this has been replicated by more recent research in which asexual individuals reported being much less likely to masturbate for reasons such as sexual pleasure than for more functional reasons, such as to relieve tension (Yule et al., in press). In other words, according to some asexuals, masturbation is a physiological act unrelated to sexual incentives. However, the presence of masturbation plus sexual fantasies, which may characterize at least half of asexual individuals, raises the possibility that there may be a great deal of variability across asexual individuals in their motives for masturbation, with some having a paraphilic component. Bogaert (2012b) discussed this further within the context of automonosexualism, a term coined originally by Magnus Hirschfeld (1914), to reflect an inward direction of one's sexual interests such that the asexual individual may be attracted to themselves.

Bogaert (2006) rejected the possibility that all asexual individuals are paraphilic, in part because extreme paraphilias without any human interest are rare, and also because there seems to be more women than men identifying as asexual (Bogaert, 2004, 2013), whereas paraphilias are more common in men. Nevertheless, Bogaert (2012b) goes on to speculate that a specific type of paraphilia might characterize some asexual individuals. Specifically, autochorissexualism, which Bogaert defined as an "identity-less sexuality," such that while there is usually a sense of self within one's sexual fantasies, an individual with autochorissexualism may lack a sense of identity as the protagonist within a sexual fantasy. There is some indirect empirical support for this possible link between asexuality and autochorissexuality in that among asexuals who report having experienced a sexual fantasy, 11 % of them reported that their fantasies did not depict any human persons, whereas this was the case for only 0.5 % of those in an age-matched sexual comparison group (Yule et al., 2014a). Further indirect support for this stems from our earlier finding of significantly higher rates of alexithymia traits in asexuals compared to sexual participants (Brotto et al., 2010). It is possible that some shared underlying attribute contributes to both the lack of emotional attachment (in alexithymia) and to lack of sense of self during a fantasy or behavior (autochorissexuality). Future research should aim to explore the association between these constructs among asexually identifying individuals.

Another study in this special issue presented the results of a thematic analysis of the sexual fantasies shared by 351 asexual individuals and 388 sexual persons, with the primary aim of exploring the contents of their sexual fantasies (Yule et al.,

2016). Asexual participants were significantly more likely than sexual participants to fantasize about scenes that did not involve themselves, but rather, involved romantic scenes (likely reflecting the finding that asexual individuals have romantic attractions that vary considerably from romantic to aromantic; Ginoza et al., 2014). Asexual women were more likely than sexual women to fantasize about fictional characters. The asexual participants were also more likely to report feeling disconnected and/or dissociated from the contents of their fantasies, providing additional support for Bogaert's (2012b) theory of autochorissexuality.

On the AVEN forum under the discussion title "Masturbating A's: What do you think about when masturbating?," answers by AVEN members included: "At the risk of sounding like a 12-year-old girl, I almost invariably think of fictional characters. My thoughts have never involved people I know, and they have never involved myself" by Vicious Trollop; "I usually think of my favorite fictional characters having sex. But *never* myself" by Tangerine Panda; "Generally speaking, I only really think of cuddling, believe it or not. Usually, not a specific person or anything, just a 'generic human.' Gender not really defined as: I don't actually think about sex itself" by Shivers (AVEN Forum, 2005).

Could some asexuals experience erotic target location errors (ETLE)? ETLEs can involve preferential attention to a peripheral or inessential part of an erotic target, manifesting as fetishism, or mislocation of an erotic target onto one's own body, manifesting as the desire to impersonate or become a facsimile of the erotic target (Blanchard, 1991; Lawrence, 2009). In other words, could some asexuals who lack sexual attraction towards other humans experience sexual attraction to a particular inanimate object (e.g., clothing) or to some imagined self? This is possible, and may account for the finding that a proportion of asexuals who, by definition, lack sexual attraction to others have fantasies that do not depict humans, and in some cases, depict fictional characters or scenes. Unfortunately, the questions asked about the contents of sexual fantasies in the available research have been imprecise, and we are unsure whether the imagined scene/character/activity in the asexual's fantasy is an "imagined self" of the individual, or whether they are eliciting the fantasy simply as a means of focusing attention on an object for the purposes of becoming sexually aroused and having an orgasm (cf. Brotto et al., 2010). We encourage other researchers to deploy more precision in the questions asked about whether or not there is an imagined "self" in these fantasy scenes.

Whereas these data provide some support for the possibility that asexuality may be an expression of paraphilic interest, it must be noted that recent studies have shown that a substantial proportion of sexual individuals also engage in fantasies that might be considered paraphilic, and some have queried whether what has been traditionally considered to be "paraphilic" might actually reflect normative sexual interests (Ahlers et al., 2011; Joyal, Cossette, & Lapierre, 2015; Ogas & Gaddam, 2011). These researchers, in particular, urge for less emphasis being placed on the content of sexual fantasies as being indicators of an individual's primary erotic preference and, instead, focus on the effect of particular sexual fantasies when labeling something as abnormal (Joyal et al., 2015). It is worth noting, however, that non-paraphilic individuals have sexual fantasies with largely non-paraphilic themes (and some paraphilic themes) whereas paraphilic individuals have mostly paraphilic themes associated with their sexual fantasies. Future research should aim to document the frequency of paraphilic fantasies exhibited among asexual individuals as a means of discerning whether this is an isolated experience or a recurrent pattern of fantasies that accompany masturbatory behavior.

Asexuality as a Unique Sexual Orientation

According to LeVay and Baldwin (2012), sexual orientation is defined as an internal mechanism that directs a person's sexual and romantic disposition toward females, males, or both, to varying degrees. Many researchers endorse this view, and place a stronger emphasis on sexual attraction, rather than overt behavior, in conceptualizing sexual orientation based on the notion that sexual attraction is the psychological core of sexual orientation (Bogaert, 2003). A criticism of this definition is that it suggests the co-development and concordance of sexual desire and romantic attraction, yet a large body of research challenges their inter-connectedness (Diamond, 2003). If one adopts this definition of sexual orientation, then one might conclude that asexuality is actually the *absence* of sexual orientation (and we would argue that this question has been inadequately explored by the existing science). Asexual advocates have maintained, however, that asexuality is a unique sexual orientation group, and have lobbied for its inclusion in sexual minority societies and pride day events. Scherrer (2008) highlighted the similarities between asexuality and other sexual minorities, specifically in that both have challenged the connection with medical institutions (with homosexuality historically being classified as a psychiatric illness, and skeptics of asexuality suggesting that it is a manifestation of a psychological disorder). Both have also used networking to create identity-based communities (e.g., Jay, 2008). We acknowledge that relying on these socio-cultural similarities between asexuals and other sexual minority groups, alone, to justify asexuality as a unique sexual orientation might be inappropriate, and that stronger evidence supporting asexuality as a unique orientation is needed to make this conclusion.

The focus on sexual attraction, rather than on sexual behavior, fits other definitions of sexual orientation, and fits Bogaert's (2006) definition, which emphasizes that attraction is the psychological core of sexual orientation. By extension, Bogaert (2015) also proposed that asexuality be considered as a unique sexual orientation. The finding that asexual individuals have

reported "always feeling this way" (Brotto et al., 2010; Van Houdenhove et al., 2015a) suggests that their lack of attraction may be lifelong, and is an innate personal characteristic rather than a reaction to an adverse (sexual) encounter.

One piece of indirect evidence supporting the innate development of a sexual orientation stems from biomarkers research. Bogaert (2004, 2013) postulated that asexual women's tendency to have atypical menstrual characteristics relative to sexual women, shorter stature, and a greater number of health problems provides support for the role of early biological influences on asexuality. Further evidence for the prenatal origins of asexuality comes from a study of 1283 individuals where asexual women had a significantly greater chance of being non-righthanded (OR = 2.51) than androphilic women, and asexual men were similarly more likely to be non-righthanded (OR = 2.39) than gynephilic men, with over a quarter of the asexual participants being non-righthanded (Yule, Brotto, & Gorzalka, 2014b). Given that handedness has been regarded as a biological marker associated with sexual orientation development (Lalumière, Blanchard, & Zucker, 2000), these findings provide indirect evidence for asexuality as a sexual orientation. In the same study, further evidence for the prenatal origins of asexuality stem from the finding that asexual righthanded male participants had significantly more older brothers than righthanded gynephilic participants (Yule et al., 2014b). The magnitude of the non-righthanded effect seen in Yule et al. was nearly twice that of observed in the meta-analysis of gay participants (Lalumière et al., 2000) (OR = 2.39–2.51 vs 1.39, respectively), providing noteworthy support for the strength of this association in asexuals.

Fraternal birth order, another biomarker associated with sexual orientation in men (Blanchard, 2008; Blanchard & Bogaert, 1996), is associated with the maternal immune hypothesis, by which a greater number of maternal older brothers is linked with a greater likelihood of (homosexual) sexual orientation in men. Yule et al. (2014b) found that asexual men (and androphilic men) were more likely to have older brothers than gynephilic men, and interestingly, asexual women had significantly fewer older brothers than androphilic women. These somewhat conflicting findings raise the possibility that asexual men and asexual women have different origins of their asexuality, as is likely the case with gay and lesbian individuals as well. That the asexual men appeared to have an even greater number of older brothers than the gay men (though this effect was not significant) in the study by Yule et al. (2014b) also strengthens the study's conclusion about the potential innateness of asexuality.

Seto's (2012) exploration of whether pedophilia should be considered a unique sexual orientation may be useful for exploring whether asexuality similarly fits the definition of a sexual orientation. Seto suggested that three criteria need to be considered: namely age of onset, one's sexual and romantic behavior, and the stability of the attraction over time. Regarding the first criterion, qualitative studies (Brotto et al., 2010; Carrigan, 2011; Scherrer, 2008; Van Houdenhove et al., 2015a) reveal asexual individuals to have "always felt this way ever since I can remember," and to deny a significant event in their life that triggered the loss of sexual attraction. The rise of the Internet, and AVEN in particular, may have facilitated language and a conversation around asexuality, but the empirical literature combined with discussions on the AVEN forum converge to paint a picture in which the asexual identity has always been present.

In regard to Seto's (2012) second criterion pertaining to behavior, he noted that "the strongest test of sexual orientation is whom a person would choose in a hypothetical situation where they could freely have sex, without negative consequences, when presented with alternate choices" (p. 234). Whereas there is great variability in the extent of romantic attraction (or desire for a romantic partner) held among asexual individuals, there is relative consistency in their lack of motivation for sex. Many report that sex is something that they, frankly, can live without. Among asexual individuals who do engage or have engaged in sexual activity, it is likely that partnership with a sexually identifying individual accounts for their sexual activity (Van Houdenhove et al., 2015a). If this is true, then asexuality would indeed meet Seto's second criterion for asexuality as a sexual orientation since their (relative) lack of sexual behavior parallels their lack of sexual attraction.

The third criterion, temporal stability, refers to the stability in one's preferences (or lack thereof in the case of asexuality) over time. Using data from Waves III and IV from the National Longitudinal Study of Adolescent Health (Add Health), Cranney (2016) examined the temporal stability for the item "lack of sexual attraction" from Waves III to IV. Among 25 participants in Wave III who reported no sexual attraction, most did not continue to report a lack of sexual attraction in Wave IV, and only three participants who reported no sexual attraction during Wave III went on to report no sexual attraction during Wave IV. A kappa score of 0.17 shows a relatively weak agreement across waves for the asexual individual's sexual orientation, and slightly higher kappas (0.2–0.4) for the other sexual minority groups. Moreover, the existence of demi-sexual individuals (i.e., a person who identifies as asexual until they form a strong emotional connection with someone) and gray-sexual individuals, who fall somewhere in the spectrum between asexual and sexual, suggests that there may be fluidity associated with asexuality identification. Sexual fluidity has been especially described in samples of women more so than men (as reviewed by Diamond, 2012), and although asexuals have not been studied in this body of research, we cannot rule out that fluidity also applies to asexually identifying individuals. Two large population-based studies found a greater proportion of females than males identifying as asexual (after weighted analyses) (Bogaert, 2004, 2013). These two observations (fluidity among asexuals and greater prevalence among women over men) may be related, and should be explored in the future. In light of these findings, we conclude that there may be only weak support for

Seto's (2012) third criterion of temporal stability among asexual individuals, though of course, the presence of fluidity does not neg ate something as constituting a sexual orientation.

Taken together, asexuals would meet only criteria one and two, but not criterion three, of Seto's conditions for meeting a sexual orientation label; however, we must be mindful of the concerns about studying temporal stability of orientation in young adults.

Challenges to Considering Asexuality as a Unique Sexual Orientation

There has been a strong drive from within the asexuality community to accept asexuality as a sexual orientation, and an associated openness to research efforts directed at finding evidence for biological innateness, presumably because the "born that way" argument may attenuate stigma directed towards asexuals. However, we must critically evaluate the tenet that evidence of biological correlates or predispositions to asexuality are sufficient for classifying asexuality as a unique sexual orientation. We agree with Bogaert (2006), who argues against this line of reasoning, and notes that "even if an essentialist position is correct, a biological predisposition is not the same as an actual sexual orientation" (pp. 246–247). Gressgärd (2013) also adopts this cautionary view with regard to asexuality. Furthermore, the cau se(s) of a sexual orientation should not be equated with the phenomenon itself, and there may be multiple causes leading to the final (asexual) outcome.

One must also consider whether sexual orientation classification is a process of exclusion, as we have done in this brief review by first considering whether asexuality is a psychiatric condition, a sexual dysfunction, and a paraphilia. However, th ese categories are not mutually exclusive, and even if asexuality were best placed within a sexual orientation classification, this does not exclude the possibility that it can also overlap with the other categories. In other words, it is possible that an individ ual may have an asexual orientation, have a psychiatric disorder (e.g., major depressive disorder), and have a sexual dysfunction (orgasmic disorder) simultaneously. In a similar vein, self-identified asexuals are a heterogeneous group (with respect to romantic attraction, extent of partnered and solitary sexual behavior, frequency and content of masturbatory fantasies, relationship status, medical and psychological correlates; Van Houdenhove, Gijs, T'Sjoen, & Enzlin, 2015b), thus we must recognize the possibility that it does not fall neatly into a single category for all asexually identifying individuals.

The category of individuals who adopt the label "asexual" appears to be becoming more heterogeneous since Bogaert's (2004) original paper. The most recent AVEN Community Ce nsus (Ginoza et al., 2014) revealed widespread diversity in que stions about participants' sexual orientation, gender identity, and romantic orientation. As such, it is likely that how one experiences their asexual identity is likely to differ compared to others who fall under the same asexual umbrella. Future research should aim to explore the different trajectories that had led these different subgroups toward adopting an asexual identity.

Conclusions

Kinsey first defined the lack of sexual attraction inherent to asexuality as belonging to category X (Kinsey, Pomeroy, & Martin 1948), yet rigorous empirical research on this category has emerged only over the past decade. Research employing a variety of methodologies, and drawn from many different disciplines, has examined the nature of asexuality, with a focus on how to best conceptualize it. Here, we briefly reviewed data addressing the possibility that asexuality is a psychiatric disorder (or a symptom of one), or that it is a sexual dysfunction. We conclude that there is not sufficient evidence to support either of these classifications for asexuality. There is some preliminary support, however, for at least a subgroup among asexual individ uals to have a paraphilic characterization, and more rese arch exploring the persistence and pervasiveness of paraphilic fantasies may be useful to this line of inquiry. Using criteria that have been applied to considering whether pedophilia should be considered a unique sexual orientation or not, we conclude that there is modest support for asexuality's placement as a unique sexual orientation. There is, however, likely as much variability among asexual individuals' lack of sexual attraction (and whether it also extends to lack of romantic attraction) as there is among sexual individuals' presence of sexual attraction.

Other articles in this special issue consider some of the dimensions of sexual orientation such as sex/gender of the preferred target, as well as age of the preferred target. Might asexuality represent another dimension on which orientation is based, such that subjective falls at one end (e.g., the individual with a sense of identity as a sexual agent) and non-subjective falls at the other end (e.g., the autochorissexual who experiences a complete identityless sexuality).[3] Within such a spectrum, this would account for the experiences of Gray As, who experience sexual attraction so me of the time, and for demisexuals, who experience sexual attraction only after developing a strong romantic attraction to wards a particular individual. Studying asexuality as a subjective/non-subjective dimension or orientation might guide future research questions that will ultimately lead to greater und erstanding of asexual subtypes.

Acknowledgments The authors wish to thank Tony Bogaert for providing helpful comments on an earlier draft of this paper. We also wish to thank Paul Vasey and an anonymous reviewer for very valuable comments that have led to a strengthened paper.

[3] The authors thank Dr. Paul Vasey for suggesting this dimension of orientation.

Compliance with Ethical Standards

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

References

Ahlers, C. J., Schaefer, G. A., Mundt, I. A., Roll, S., Englert, H., Willich, S. N., & Beier, K. M. (2011). How unusual are the content of paraphilias? Paraphilia-associated sexual arousal patterns in a community-based sample of men. *Journal of Sexual Medicine, 8*, 1362–1370.

Aicken, C. R. H., Mercer, C. H., & Cassell, J. A. (2013). Who reports absence of sexual attraction in Britain? Evidence from national probability surveys. *Psychology & Sexuality, 4*, 121–135.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.

Asexuality on 20/20. (2006). https://www.youtube.com/watch?v=CeKGOMUVU7g.

AVEN Forum. (2005). Retrieved December 1, 2015, from http://www.asexuality.org/en/topic/9980-masturbating-as-what-do-you-think-about-when-masturbating/?p=237288#entry237288.

Blanchard, R. (1991). Clinical observations and systematic studies of autogynephilia. *Journal of Sex and Marital Therapy, 17*, 235–251.

Blanchard, R. (2008). Review and theory of handedness, birth order, and homosexuality in men. *Laterality, 13*, 51–70.

Blanchard, R., & Bogaert, A. F. (1996). Homosexuality in men and number of older brothers. *American Journal of Psychiatry, 153*, 27–31.

Bogaert, A. F. (2003). Number of older brothers and sexual orientation: New tests and attraction/behavior distinction in two national probability samples. *Journal of Personality and Social Psychology, 84*, 644–652.

Bogaert, A. F. (2004). Asexuality: Prevalence and associated factors in a national probability sample. *Journal of Sex Research, 41*, 279.

Bogaert, A. F. (2006). Toward a conceptual understanding of asexuality. *Review of General Psychology, 10*, 241–250.

Bogaert, A. F. (2012a). *Understanding asexuality*. Plymouth, UK: Rowman & Littlefield.

Bogaert, A. F. (2012b). Asexuality and autochorissexualism (identityless sexuality). *Archives of Sexual Behavior, 41*, 1513–1514.

Bogaert, A. F. (2013). Demography of asexuality. In A. K. Baumle (Ed.), *International handbook on the demography of sexuality, international handbooks of population* (Vol. 5, pp. 275–288). Dordrecht: Springer.

Bogaert, A. F. (2015). Asexuality: What it is and why it matters. *Journal of Sex Research, 52*, 362–379.

Both, S., Everaerd, W., & Laan, E. (2007). Desire emerges from excitement: A psychophysiological perspective on sexual motivation. In E. Janssen (Ed.), *The psychophysiology of sex* (pp. 327–339). Bloomington: Indiana University Press.

Brotto, L. A., Knudson, G., Inskip, J., Rhodes, K., & Erskine, Y. (2010). Asexuality: A mixed-methods approach. *Archives of Sexual Behavior, 39*, 599–618.

Brotto, L. A., & Yule, M. A. (2011). Physiological and subjective sexual arousal in self-identified asexual women. *Archives of Sexual Behavior, 40*, 699–712.

Brotto, L. A., Yule, M. A., & Gorzalka, B. B. (2015). Asexuality: An extreme variant of sexual desire disorder? *Journal of Sexual Medicine, 12*, 646–660.

Carlson, T. (2006, March, 27). Asexuality on Tucker Carlson. https://www.youtube.com/watch?v=Iwxo6t7XBYs.

Carrigan, M. (2011). There's more to life than sex? Difference and commonality within the asexual community. *Sexualities, 14*, 462–478.

Childs, D. (2009, January, 16). Asexuals push for greater recognition. *ABC News*. http://abcnews.go.com/Health/MindMoodNews/asexuals-push-greater-recognition/story?id=6656358.

Cranney, S. (2016). The temporal stability of lack of sexual attraction across young adulthood. *Archives of Sexual Behavior, 45*, 743–749. doi:10.1007/s10508-015-0583-4.

D'Augelli, A. R., & Hershberger, S. L. (1993). Lesbian, gay and bisexual youth in community settings: Personal challenges and mental health problems. *American Journal of Community Psychology, 21*, 421–448.

Developmental Disabilities Monitoring Network Surveillance Year 2010 Principal Investigators. (2014). Prevalence of autism spectrum disorder among children aged 8 years-autism and developmental disabilities monitoring network, 11 sites, United States, 2010. *Morbidity and Mortality Weekly Report*, *63*(2), 1.

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

Diamond, L. M. (2012). The desire disorder in research on sexual orientation in women: Contributions of dynamical systems theory. *Archives of Sexual Behavior, 41*, 73–83.

Gilmour, L., Schalomon, P. M., & Smith, V. (2012). Sexuality in a community based sample of adults with autism spectrum disorder. *Research in Autism Spectrum Disorders, 6*, 313–318.

Ginoza, M. K., Miller, T., & Members of the AVEN Survey Team. (2014). *The 2014 AVEN Community Census: Preliminary findings*. Retrieved January 5, 2016, from http://www.asexualcensus.wordpress.com.

Gressgärd, R. (2013). Asexuality: From pathology to identity and beyond. *Psychology and Sexuality, 4*, 179–192.

Hinderliter, A. (2013). How is asexuality different from hypoactive sexual desire disorder. *Psychology & Sexuality, 4*, 167–178.

Hirschfeld, M. (1914). *Homosexualität des Mannes und des Weibes*. Amherst, NY: Prometheus Books.

Höglund, J., Jern, P., Sandnabba, N. K., & Santtila, P. (2014). Finnish women and men who self-report no sexual attraction in the past 12 months: Prevalence, relationship status, and sexual behavior history. *Archives of Sexual Behavior, 43*, 879–889.

Ingudomnukul, E., Baron-Cohen, S., Wheelwright, S., & Knickmeyer, R. (2007). Elevated rates of testosterone-related disorders in women with autism spectrum conditions. *Hormones and Behavior, 51*, 597–604.

Jay, D. (2008). *Asexuality visibility and education network*. Retrieved March 1, 2011, from http://www.asexuality.org/home/overview.html.

Johnson, M. T. (1977). Asexual and autoerotic women: Two invisible groups. In H. L. Gochros & J. S. Gochros (Eds.), *The sexually oppressed* (pp. 96–109). New York: Association Press.

Joyal, C. C., Cossette, A., & Lapierre, V. (2015). What exactly is an unusual sexual fantasy? *Journal of Sexual Medicine, 12*, 328–340.

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

Lalumière, M. L., Blanchard, R., & Zucker, K. J. (2000). Sexual orientation and handedness in men and women: A meta-analysis. *Psychological Bulletin, 126*, 575–592.

Lawrence, A. A. (2009). Erotic target location errors: An underappreciated paraphilic dimension. *Journal of Sex Research, 46*, 194–215.

LeVay, S., & Baldwin, J. (2012). *Human sexuality* (4th ed.). Sunderland, MA: Sinauer.

Lucassen, M. F. G., Merry, S. N., Robinson, E. M., Denny, S., Clark, T., Ameratunga, S., … Rosen, F. V. (2011). Sexual attraction, depression, self-harm, suicidality and help-seeking behaviour in New Zealand secondary school students. *Australian and New Zealand Journal of Psychiatry, 45*, 376–383.

MacInnis, C. C., & Hodson, G. (2012). Intergroup bias toward "Group X": Evidence of prejudice, dehumanization, avoidance, and discrimi

nation against asexuals. *Group Process & Intergroup Relations, 15*, 725–743.
Nurius, P. S. (1983). Mental health implications of sexual orientation. *Journal of Sex Research, 19*, 119–136.
Ogas, O., & Gaddam, S. (2011). *A billion wicked thoughts. What the Internet tells us about sexual relationships*. New York: Dutton.
Poston, D. L, Jr., & Baumle, A. K. (2010). Patterns of asexuality in the United States. *Demographic Research, 23*, 509–530.
Prause, N., & Graham, C. A. (2007). Asexuality: Classification and characterization. *Archives of Sexual Behavior, 36*, 341–356.
Scherrer, K. S. (2008). Coming to an asexual identity: Negotiating identity, negotiating desire. *Sexualities, 11*, 621–641.
Seto, M. C. (2012). Is pedophilia a sexual orientation? *Archives of Sexual Behavior, 41*, 231–236.
Toomey, R. B., Ryan, C., Diaz, R. M., Card, N. A., & Russell, S. T. (2010). Gender-nonconforming lesbian, gay, bisexual, and transgender youth: School victimization and young adult psychosocial adjustment. *Developmental Psychology, 46*, 1580–1589.
Van Houdenhove, E., Gijs, L., T'Sjoen, G., & Enzlin, P. (2015a). Stories about asexuality: A qualitative study on asexual women. *Journal of Sex and Marital Therapy, 41*, 262–281.
Van Houdenhove, E., Gijs, L., T'Sjoen, G., & Enzlin, P. (2015b). Asexuality: A multidimensional approach. *Journal of Sex Research, 52*, 669–678.
Westfall, S. P. (2004, October, 16). Glad to be A. *New Scientist, 184*, 40–43.
Williams, M. (2007, January, 4). The Montel Williams show discusses asexuality. https://www.youtube.com/watch?v=ErDfQMKnwSE.
Yule, M. A., Brotto, L. A., & Gorzalka, B. B. (2013). Mental health and interpersonal functioning among asexual individuals. *Psychology & Sexuality, 4*, 136–151. doi:10.1080/19419899.2013.774162.
Yule, M. A., Brotto, L. A., & Gorzalka, B. B. (2014a). Sexual fantasy and masturbation among asexual individuals. *The Canadian Journal of Human Sexuality, 23*, 89–95.
Yule, M. A., Brotto, L. A., & Gorzalka, B. B. (2014b). Biological markers of asexuality: Handedness, birth order, and finger length ratios in self-identified asexual men and women. *Archives of Sexual Behavior, 43*, 299–310.
Yule, M. A., Brotto, L. A., & Gorzalka, B. B. (in press). Sexual fantasy and masturbation among asexual individuals: An in-depth exploration. *Archives of Sexual Behavior*.