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ORIGINAL PAPER

Sexuality, Sexual Behavior, and Relationships of Asexual Individuals: Differences Between Aromantic and Romantic Orientation

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Abstract

Asexuality is a complex construct with a considerable lack of research until recently. Building upon available findings, we examined the extent to which romantic orientation shapes individual and relationship experiences, and expectations of asexual individuals. Specifically, our research focused on the distinction between romantic asexual individuals, who experience romantic attraction, and aromantic asexual individuals, who do not experience romantic attraction. A cross-sectional study with members of different asexual online communities ($N=447$, 55.02% women; $M_{age}=24.77$ years, $SD=7.21$) aimed at examining how both groups differ in their identification with the asexuality construct as measured by the Asexuality Identification Scale (Yule et al., 2017), individual perspectives on sexuality, sexual behavior and relationships, concerns about commitment and sexual performance in a relationship, and attachment style. Results showed that aromantic asexual individuals identified more with asexuality, reported a more avoidant attachment style, and were more concerned with relationship commitment. In contrast, romantic asexual individuals reported less sex aversion, more sexual experiences (both past and current), and more sexual partners in the past. These individuals also engaged in romantic relationships more frequently in the past, had a stronger desire to engage in a romantic relationship in future (either with or without sexual intimacy), and were more concerned with sexual performance. Overall, our findings contribute to the literature by highlighting the need to consider romantic orientation when examining asexuality and its interpersonal outcomes.

Keywords Asexuality · Romantic orientation · Aromantic · Sexuality · Relationship outcomes

Introduction

There has been an increased interest in the study of asexuality over the last 15+ years, along with a change from a pathological to a more affirming perspective (e.g., Bogaert, 2004, 2006; Brotto et al., 2010; de Oliveira et al., 2021; Van Houdenhove et al., 2014; Yule et al., 2017). This change is arguably linked with the increased presence of asexuality in online communities, such as the Asexual Visibility and Education Network (AVEN), and the inclusion of asexual characters in mainstream media (e.g., BoJack Horseman TV show). Despite this growing visibility, a nationally representative poll by Sky Data showed that 53% of British adults were confident they could define asexuality, but 75% were unable to explain what asexuality is or did not know that some asexual individuals experience sex drive (Bell, 2019).

Asexuality was originally defined by AVEN as the absence of sexual attraction to others. This definition was used by Bogaert (2004) in his seminal work and it was widespread to the scientific (Van Houdenhove et al., 2017) and the asexual communities (Brotto et al., 2010; Jones et al., 2017; Van Houdenhove et al., 2015a, 2015b), and to the public (Bell, 2019). However, this definition does not exhaustively cover prevalent attitudes and orientations within the community (Carrigan, 2011). Illustrating this diversity, some asexual individuals identify as graysexual and experience low levels of sexual attraction, and others identify as demisexual and experience sexual attraction as a result of an emotional connection with others (Carrigan, 2011; Decker, 2015). Building upon this reasoning, we focused on romantic orientation and how it can shape individual, interpersonal, and romantic relationship outcomes. Available research showed that romantic asexual individuals are more interested in finding a romantic partner than aromantic asexual individuals (Carrigan, 2011; Scherrer, 2008). However, there is a lack of research focusing on this variable among the asexual community. We addressed this gap by examining how romantic orientation

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shaped individual perspectives on sexuality, sexual behavior, and relationships. Specifically, we explored if romantic and aromantic asexual individuals differed in their identification with Yule et al.'s (2015) definition of asexuality as a lack of sexual attraction. We also explored differences in attitudes toward sex, past and current sexual experiences, past and current experiences with romantic relationships, desire to establish a romantic relationship, either with or without sexual intimacy, and concerns with commitment and sexual performance in the context of a romantic relationship. Lastly, we explored differences in attachment styles (see Brotto et al., 2010).

Asexuality Construct

To identify the central attributes of the asexuality construct, Yule et al. (2015) asked a sample of asexual individuals to characterize asexuality in their own words, and how they described their sexuality before discovering the term asexual. Yule et al. identified common themes and specific attributes, which were then used to develop the Asexuality Identification Scale (AIS). Even though this measure reliably categorized individuals as (a)sexual, Yule et al. acknowledged that asexuality is a continuous construct and, in certain situations, this categorization can conflict with the self-categorization as asexual. Importantly, Yule et al. also found that asexual individuals scored differently on the AIS, depending on whether or not they engaged in sexual fantasies or masturbatory acts (see also Yule et al., 2017). This shows that asexual individuals vary in their perceptions and behaviors toward sexuality and have different perspectives on sexual behavior and relationships.

Experiences with Sexuality and Romantic Orientation

Asexual individuals can consider certain aspects of a relationship as desirable (e.g., closeness, companionship) and strive to establish emotional intimacy with others (Carrigan, 2011; Scherrer, 2008). However, some asexual individuals have indicated to consider love and sex as incompatible, and that sexual involvement diminishes feelings toward the partner (Van Houdenhove et al., 2015a). These individuals can perceive sexual activity as an obligation, use distracting strategies that lead them to experience sexual stimulation void of emotional intimacy (e.g., focus on thoughts unrelated to sexual activity), and feel emotionally distant from their partners (Brotto et al., 2010; Prause & Graham, 2007). Nonetheless, some individuals engage in physically intimate activities (e.g., kissing, cuddling) without considering these as sexual activities (Prause & Graham, 2007; Van Houdenhove et al., 2015a), and others engage in sexual activity when they have a romantic relationship with a sexual partner (Dawson et al., 2016). For example, some romantic asexual individuals are more willing to engage in sexual activities to satisfy the desires of non-asexual partners (Brotto et al., 2010; Dawson et al., 2016; Prause & Graham, 2007; Van Houdenhove et al., 2015a). Accordingly, studies suggest that up to 79% of asexual individuals experience romantic attraction (Gupta, 2017; Van Houdenhove et al., 2015b), up to 22% are in romantic relationships (Brotto et al., 2010; Hille et al., 2020; Van Houdenhove et al., 2014), and up to 43% have engaged in dyadic sexual activity in the past (Aicken et al., 2013; Brotto et al., 2010). These findings suggest that some asexual individuals are motivated to seek companionship and to have emotional intimacy with others (Brotto et al., 2010; Decker, 2015; Scott et al., 2016). To the extent that some of these intimate relationships can include—but not necessarily—romantic intimacy and sexual activity (Carrigan, 2011; Scherrer, 2008; Van Houdenhove et al., 2015a), we argue that this variability can be explained by romantic orientation.

Asexual individuals who are aromantic tend to establish emotionally intimate relationships without romantic or physical intimacy (e.g., friendship-like relationships; Dawson et al., 2016; Scherrer, 2008). Arguably, then, they can have more negative attitudes toward sex and even be troubled by the idea of having sex (i.e., be more sex-averse; Carrigan, 2011; Van Houdenhove et al., 2015a). In contrast, romantic asexual individuals have no interest in sexual intimacy (Brotto et al., 2010) and do not typically initiate sexual behavior (Van Houdenhove et al., 2015a). However, they can have interest in physical intimacy and desire a romantic relationship (Brotto et al., 2010; Scherrer, 2008). Arguably, then, these individuals can be indifferent or slightly favorable to the idea of having sex. Aligned with this reasoning, research showed that romantic (vs. aromantic) asexual individuals have greater sexual attraction for others (Zheng & Su, 2018), are more likely to be in a relationship, had more romantic and sexual partners in the past, have more dyadic sexual desire, and kiss their partners more often (Antonsen et al., 2020).

There is still debate on what can underlie asexuality (Van Houdenhove et al., 2014). For example, Brotto et al. (2010) suggested that asexuality can be related to an avoidant attachment style, given that these individuals are uncomfortable with romantic relationships. Still, no research has examined if asexual individuals differ in their attachment style depending on their romantic orientation.

Attachment Style

Attachment theory proposes that experiences with significant figures in childhood lead to the development of relatively stable internal dynamic models (Mikulincer & Shaver, 2007) that determine experiences and outcomes in romantic relationships (Shaver & Hazan, 1987, 1988). Attachment style can be evaluated along two independent dimensions. Avoidance is defined

by discomfort with psychological intimacy and the desire to maintain psychological independence from the other person. Anxiety is defined by the need for care and attention, and uncertainty about the responsiveness of the other person (Brennan et al., 1998; Simpson & Rholes, 2017). In the absence of both dimensions, individuals have a secure attachment style and high-quality romantic relationships (Hazan & Shaver, 1987; Kirkpatrick & Davis, 1994; Mikulincer & Florian, 1999; Simpson, 1990). In contrast, individuals with insecure attachment styles—either high on avoidance, anxiety, or both—experience doubts about the relationship and tend to adopt defensive strategies in their interactions with romantic partners (Fraley & Shaver, 2000; Mikulincer et al., 2003). Driven by a fear of intimacy, avoidant individuals tend to maximize emotional distance and psychological independence from the attachment figure, seeking autonomy and control. These individuals tend to avoid closeness and intimacy (Mikulincer et al., 2003), are less likely to fall in love and are less motivated to have long-term relationships (Hatfield et al., 1989; Shaver & Brennan, 1992), and tend to have unstable romantic relationships (Collins & Read, 1990; Hazan & Shaver, 1987; Mikulincer & Florian, 1999; Shaver & Brennan, 1992). Driven by a fear of abandonment, anxious individuals tend to seek support and attention from the attachment figure, perceived as not sufficiently available or responsive. These individuals have excessive concerns about being rejected and how committed their partner is (Simpson et al., 1996), leading to negative experiences and dynamics (e.g., feelings of obsession, anger, jealousy) in their relationship (Collins & Read, 1990; Hatfield et al., 1989; Hazan & Shaver, 1987; Mikulincer et al., 1998).

Past research established an association between attachment styles and sexual functioning. For example, individuals with an avoidant attachment style tend to experience physical and psychological discomfort with sexual activity and may seek to abstain from it (Kalichman et al., 1994; Tracy et al., 2003) or have sexual activity without emotional intimacy (Gentzler & Kerns, 2004). Research linking asexuality with attachment styles is extremely scarce. Because asexual individuals scored higher on the social withdrawal and inhibition personality traits, Brotto et al. (2010) argued that they may develop an avoidant attachment style during their childhood, leading them to be insecure and having difficulties developing or sustaining romantic relationships. To the extent that relationship experiences differ according to romantic orientation, attachment styles can also differ.

Current Study and Hypotheses

Research has shown considerable variability in the way asexual individuals perceive and behave in romantic relationships. Some authors acknowledge romantic orientation as an important part of the identity within the asexual community (Carrigan, 2011; Scherrer, 2008). However, little research has focused on this distinction.

In a cross-sectional study with self-identified asexual individuals, we explored if romantic orientation shapes individual and interpersonal perceptions about sexuality, sexual behavior, and romantic relationships. As mentioned by Brotto et al. (2010), the distinction between romantic and aromantic identity is an important aspect of asexual identity. Even though both aromantic and romantic asexual individuals desire emotional intimacy with other people (Brotto et al., 2010; Dawson et al., 2016; Scherrer, 2008), aromantic asexual individuals are not interested in romantic relationships nor physical intimate activity (Carrigan, 2011; Scherrer, 2008). Hence, aromantic (vs. romantic) asexual individuals should identify to a greater extent with the asexuality construct, defined as a lack of sexual attraction and measured by the AIS (Yule et al., 2015) (H1).

Romantic asexual individuals are more likely to have romantically intimate relationships and may be more open to the possibility of having sexual activity (Carrigan, 2011; Scherrer, 2008). Hence, romantic (vs. aromantic) asexual individuals should feel more romantic attraction (H2a) and more sexual attraction (H2b) for other people and should be less sex-averse (H3). These individuals should have engaged in sexual experiences more often (H4a), should have had more sexual partners (H4b), and should also have engaged in romantic relationships more often (H5) in the past. Romantic (vs. aromantic) asexual individuals should also be more likely to have a current relationship (H6a) and to be more sexually active (H6b), and should have a stronger desire to have a romantic relationship in future, either with sexual intimacy (H7a) or not (H7b). Moreover, these individuals should have more concerns about commitment (H8a) and their sexual performance (H8b) in a relationship.

Lastly, Brotto et al. (2010) reasoned that asexual individuals perceive close relationships as strange and uncomfortable, and therefore have an avoidant attachment style. Hence, we expected this to be particularly the case of aromantic (vs. romantic) asexual individuals (H9a). No differences were expected for anxious attachment (H9b).

Method

Participants

A total of 635 individuals started the online survey, 11 of which did not provide their consent, and 177 did not indicate a romantic orientation. The final sample comprised 447 individuals (55.0% women; 15.9% did not disclose their sex assigned at birth) with ages ranging from 18 to 61 years old ($M = 24.77$, $SD = 7.21$). Most participants indicated a cisgender identity (83.9%). More than half of the participants were North American (57.1%), 23.04% were European (e.g., 6.3% British, 3.6% German), and 19.86% indicated other nationalities (e.g., 3.3% Australian; 1.1%

Filipino). The majority of our sample (73.8%) indicated a romantic orientation, and 22.4% of the sample indicated to be in a romantic relationship.

As shown in Table 1, differences in demographic characteristics according to romantic orientation were mostly non-significant, $ps > .242$. The only exception was gender identity, $p < .001$, such that aromantic asexual individuals were more likely to be agender or questioning their gender identity, whereas romantic asexual individuals were more likely to have a cisgender identity.

Measures

Sociodemographic questions Individuals were asked to indicate their age, sex assigned at birth, gender identity (all open-ended questions), area of residence (e.g., urban area), and highest completed level of education (e.g., high school graduate or equivalent). Given our aim to study romantic relationships, we defined "significant relationship" as an intimate relationship with another person besides family or close friends. These could include, but were not restricted to, marriages, domestic partnerships, boyfriend, girlfriend, partner, or other (see also Bauer et al., 2018). After being presented with this definition, participants were asked "What is your current relationship status?" Participants without a relationship could indicate either "I am not currently interested in any kind of significant relationship" or "I am not currently dating, but I am interested in having a significant relationship." Participants who indicated "I am currently dating and I would like to have a significant relationship," "I currently have one significant relationship," "I currently have more than one significant relationship" were later categorized as having a romantic relationship.

Table 1 Sociodemographic characteristics of aromantic and romantic asexual individuals

	Romantic orientation		Comparisons	
	Aromantic $n = 117$ (26.2%)	Romantic $n = 330$ (73.8%)	χ^2	V
Sex assigned at birth			2.84	.080
Women	69 (59.0%)	117 (53.6%)		
Men	27 (23.1%)	103 (31.2%)		
Prefer not to answer	21 (17.9%)	50 (15.2%)		
Gender identity[1]			35.10***	.305
Cis gender	70[a] (72.2%)	248[b] (88.3%)		
Transgender	0 (0.0%)	2 (0.7%)		
Non-binary	5 (5.2%)	17 (6.0%)		
Agender	12[a] (12.4%)	5[b] (1.8%)		
Questioning	4[a] (4.1%)	0[b] (0.0%)		
Other	6 (6.2%)	8 (2.8%)		
Prefer not to answer	0 (0.0%)	1 (0.4%)		
Residence[1]			0.10	.021
Urban Areas	92 (78.6%)	252 (76.6%)		
Rural Areas	25 (21.4%)	77 (23.4%)		
Education			0.45	.038
≤ 12 years	26 (22.2%)	62 (18.8%)		
> 12 years	91 (77.8%)	268 (81.2%)		
	M (*SD*)	*M* (*SD*)	*t*(444)	*d*
Age (years)	24.15 (7.23)	24.97 (7.17)	– 1.06	0.11

[1]Indicates variables with missing cases. When applicable, we present results for χ^2 with Yates correction. Different superscript between columns ([a,b]) indicate significant differences with Bonferroni correction. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$

Asexuality Identification Scale (AIS) We used the measure originally developed and validated by Yule et al. (2015), comprising 12 items (e.g., "I would be relieved if I was told that I never had to engage in any sort of sexual activity again"). Participants were asked to indicate their agreement to each item on 7-point scales (1 = *Strongly Disagree* to 7 = *Strongly Agree*). We computed a mean score, such that higher scores indicate greater identification with the asexuality construct. In this study, the scale presented good reliability ($\alpha = .76$).

Feelings of attraction Participants were asked, "To what extent do you feel romantic attraction for other people, i.e., an emotionally intimate connection with someone, not related to sex?" (1 = *Not at all* to *7* = *Very much*) and "To what extent do you feel sexual attraction for other people, i.e., desire for a sexual relationship or sexual contact with someone?" (1 = *Not at all* to *7* = *Very much*).

Romantic orientation Participants were asked, "If you experience romantic attraction, which of the following groups are you romantically attracted to? Check all that apply." This item was used to categorize participants according to their romantic orientation. Participants who indicated "Not attracted" or "Unsure" were categorized as aromantic asexual, and participants who indicated "Attracted to men," "Attracted to women" or "Attracted to both men and women" were categorized as romantic asexual.

Past sexual experiences Participants were asked to indicate the extent to which they are sex-averse ("I am repulsed by the idea of having sex"), how often they have been sexually active in the past ("Have you been sexually active in the past?"), had sexual partners in the past ("Have you ever had romantic partners who were not asexual?"), and are currently sexually active ("Currently, are you sexually active?"). All responses were given on 7-point scales (1 = *Never* to 7 = *Always*).

Past experiences with romantic relationships Participants were asked, "Have you ever had a significant relationship that can be considered romantic, i.e., a close and intimate non-sexual relationship based exclusively on affection (e.g., holding hands, kissing)?" Responses were given on 7-point scales (1 = *Completely Disagree* to 7 = *Completely Agree*).

Desire to have romantic relationships Participants were asked to indicate their desire to be in a romantic relationship

with sex ("To what extent would you like to be in a significant romantic relationship with physical intimacy, including sex") and without sex ("To what extent would you like to be in a significant romantic relationship with physical intimacy, but excluding sex"). Responses were given on 7-point scales (1 = *Strongly Disagree* to 7 = *Strongly Agree*).

Relationship concerns We used the subscales of Commitment and Sexual Performance of the Attitudes Related to Sexual Concerns Scale (Koch & Cowden, 2011). Participants were asked to indicate their level of agreement (1 = *Strongly Disagree* to 7 = *Strongly Agree*) with items indicating commitment concerns (three items; e.g., "I would not be afraid of becoming involved in a committed relationship at this point in time"), and sexual performance concerns (e.g., "I would worry that my partner would leave me if I did not do what she or he wanted to do in bed"). We computed mean scores for each subscale, such that higher scores indicate greater concerns. In this study, the Commitment subscale presented unacceptable reliability ($\alpha = .59$). Removing the item "I would feel like a failure if I found out that my sexual partner also engaged in solitary masturbation" increased the scale's reliability ($\alpha = .69$). The Sexual Performance subscale presented good reliability ($\alpha = .77$).

Attachment style We used the Adult Attachment Questionnaire (Simpson et al., 1996). Participants were asked to indicate their degree of agreement with each of the 17 items on 7-point scales (1 = *Strongly Disagree* to 7 = *Strongly Agree*). The Avoidant Attachment subscale includes eight items (e.g., "I'm not very comfortable having to depend on other people"), and the Anxious Attachment subscale includes nine items (e.g., "I usually want more closeness and intimacy than others do"). We computed mean scores for each subscale, such that higher scores indicate predominant attachment styles. In this study, both Avoidant Attachment subscale ($\alpha = .79$) and Anxious Attachment subscale ($\alpha = .74$) presented good reliability.

Procedure

Individuals were invited through different websites related to asexuality, social networks (e.g., Facebook, Reddit), and online asexual communities to take part in an online survey about asexuality. In some cases (e.g., AVEN) permission to advertise the study was granted beforehand. When accessing the provided hyperlink to the survey hosted on Qualtrics, individuals were informed about their participation rights (e.g., withdrawal and confidentiality). After providing their consent (i.e., clicking on the "I agree" option), participants were presented with the demographic questions, followed by the remaining measures. After completing the survey, participants were thanked and debriefed. The average completion time of the survey was 16 min.

Results

To test our hypotheses, we computed *t* and χ^2 tests to compare aromantic and romantic asexual individuals in their identification with asexuality, the experience of romantic and sexual attraction, attitudes toward sex, past and current sexual experience, past and current romantic relationship experience, desire to establish a relationship with and without sex, and concerns about relational commitment and sexual performance. Mean scores as presented in Table 2. To test for differences in attachment styles, we computed a repeated-measures ANOVA, using avoidant and anxious scores as our dependent variables.

Identification with Asexuality

As expected (H1), aromantic asexual individuals scored higher on the AIS when compared to romantic asexual individuals, $t(445) = 5.07$, $p < .001$, $d = 0.48$.

Feelings of Romantic and Sexual Attraction

As expected, romantic (vs. aromantic) asexual individuals indicated feeling more romantic attraction (H2a), $t(445) = 14.99$, $p < .001$, $d = 1.42$, and more sexual attraction (H2b), $t(445) = 4.78$, $p < .001$, $d = 0.45$, for other people.

Past Sexual and Relationship Experiences

In line with our hypotheses, results showed that romantic (vs. aromantic) asexual individuals were less sex-averse (H3), $t(445) = 2.46$, $p = .014$, $d = 0.23$. They also had more sexual experiences (H4a), $t(445) = 3.68$, $p < .001$, $d = 0.35$, and more sexual partners in the past (H4b), $t(444) = 4.68$, $p < .001$, $d = 0.44$, and engaged more often in romantic relationships in the past (H5), $t(445) = 3.67$, $p < .001$, $d = 0.35$.

Current Sexual and Relationship Experiences

Further supporting our hypotheses, results showed an association between romantic orientation and current relationship status (H6a), $\chi^2(1) = 68.83$, $p < .001$, $V = 0.392$, such that romantic asexual individuals were more likely to currently have a romantic relationship than their aromantic asexual counterparts. Moreover, romantic asexual individuals without a relationship were more likely to express their interest, whereas aromantic asexual individuals were more likely to express their disinterest, in having a romantic relationship. Romantic asexual individuals were also more likely to be more sexually active than aromantic asexual individuals (H6b), $t(445) = 2.98$, $p = .003$, $d = 0.28$.

Table 2 Summary of results for aromantic and romantic asexual individuals

	Romantic orientation	
	Aromantic *M* (*SD*)	Romantic *M* (*SD*)
Identification with asexuality (AIS scores)	6.00 (0.78)	5.46 (1.05)
Feelings of romantic attraction	2.34 (1.45)	4.98 (1.70)
Feelings of sexual attraction	1.21 (0.52)	1.58 (0.76)
Sex-averse attitudes	4.31 (2.26)	3.74 (2.11)
Past experiences		
Sexual experience	2.05 (2.11)	3.03 (2.59)
Sexual partners	2.86 (2.54)	4.22 (2.74)
Romantic relationships	2.59 (2.29)	3.60 (2.64)
Current experiences		
Sexual experience	1.27 (1.08)	1.78 (1.72)
Desire to have romantic relationships		
With sexual intimacy	1.68 (1.15)	2.44 (1.57)
Without sexual intimacy	3.09 (2.16)	5.47 (1.73)
Relationship concerns		
Commitment	3.72 (1.24)	2.90 (1.18)
Sexual performance	3.50 (1.75)	4.02 (1.65)
	n (%)	*n* (%)
Current relationship status		
Without a romantic relationship / Not interested	74^{a} (63.2%)	72^{b} (21.8%)
Without a romantic relationship / Interested	33^{b} (28.2%)	168^{a} (50.9%)
In a romantic relationship	10^{b} (8.5%)	90^{a} (27.3%)

AIS = Asexuality Identification Scale. Different superscript between columns (^{a,b}) indicate significant differences with Bonferroni correction

Desire to have Romantic Relationships

Converging with our hypotheses, results showed that romantic (vs. aromantic) asexual individuals indicated greater desire to have a romantic relationship, either with sexual intimacy (H7a), $t(445) = 4.75$, $p < .001$, $d = 0.45$, or without sexual intimacy (H7b), $t(445) = 11.96$, $p < .001$, $d = 1.13$.

Relationship Concerns

As expected, romantic (vs. aromantic) asexual individuals indicated greater concerns with sexual performance in a romantic relationship (H8b), $t(444) = 2.86$, $p = .004$, $d = 0.27$. Against our hypothesis (H8a), however, aromantic (vs. romantic) asexual individuals indicated greater commitment concerns, $t(444) = 6.37$, $p < .001$, $d = 0.60$.

Attachment Style

Results of a repeated-measures ANOVA showed an interaction between romantic orientation and attachment style, $F(1, 443) = 13.45$, $p < .001$, $\eta^2_p = .029$ (see Fig. 1). Aligned with our hypotheses, contrasts showed that aromantic asexual individuals scored higher on avoidant attachment style ($M = 4.58$, $SD = 1.18$) than romantic asexual individuals ($M = 4.19$, $SD = 1.16$), $t(443) = 3.06$, $p = .002$, $d = 0.29$ (H9a). Moreover, no significant difference in anxious attachment style was observed between aromantic ($M = 3.68$, $SD = 1.16$) and romantic ($M = 3.91$, $SD = 1.07$) asexual individuals, $t(443) = 1.94$, $p = .054$, $d = 0.18$ (H9b). Additional analyses showed higher scores in avoidant (vs. anxious) attachment style for both aromantic, $t(443) = 6.23$, $p < .001$, $d = 0.59$, and romantic asexual participants, $t(443) = 3.32$, $p < .001$, $d = 0.32$.

Discussion

We extended research on asexuality by examining how romantic orientation is associated with individual perspectives on sexuality, past and current experiences with sexual behavior and relationships, concerns in a relationship, and attachment style. Overall, results showed that most individuals in our sample experience romantic attraction, and more than one-third were involved in a romantic relationship. This finding is aligned with the results reported by Bauer et al. (2018).

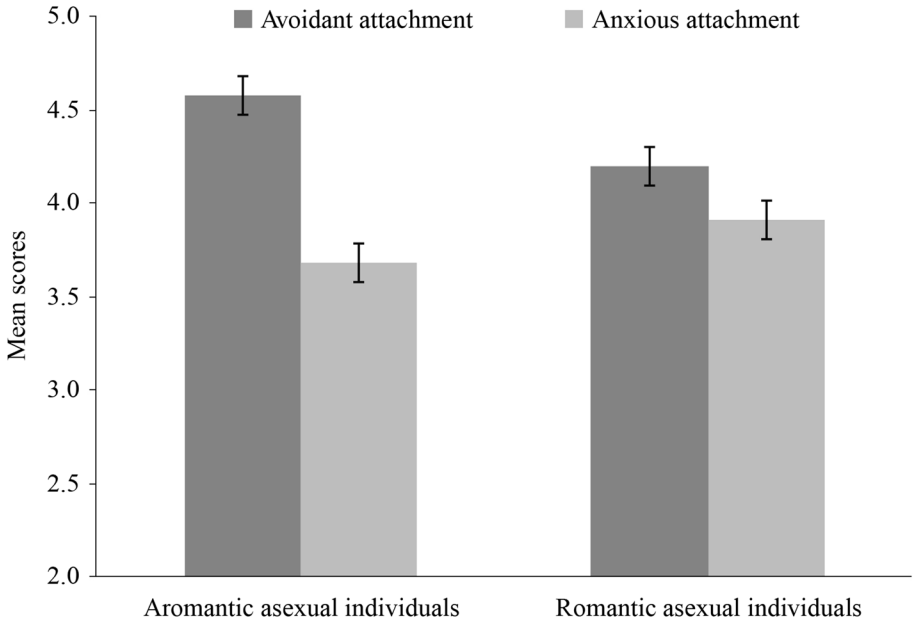

Fig. 1 Attachment style of aromantic and romantic asexual individuals (error bars indicate standard errors)

Supporting H1, results showed that aromantic asexual individuals identified with the asexuality construct—as measured by the AIS—to a greater extent than romantic asexual individuals. Validating our categorization of romantic orientation, results showed that romantic asexual individuals experience more romantic (H2a) and sexual attraction (H2b) than aromantic asexual individuals. Assuming that aromantic asexual individuals experience sexual and romantic attraction to a lesser extent and are less interested in close affectionate attachments (Carrigan, 2011; MacNeela & Murphy, 2015; Scherrer, 2008; Van Houdenhove et al, 2015a), they may be more detached from conventional social norms regarding sexuality and romantic relationships, and have greater identification with the construct of asexuality (as measured by the AIS; Yule et al., 2015). The fact that all participants in our sample identified themselves as asexual and are part of the asexual online community clearly shows the fluidity of asexuality, and that individual motivations regarding sexual activity and romantic relationships have an important role in the self-identification within the spectrum of asexuality.

The results obtained when examining individual perspectives on sexuality and sexual behavior further supported our hypotheses. Specifically, romantic (vs. aromantic) asexual individuals indicated less aversion to sex (H3), were more sexually active in the past (H4a), had more sexual partners (H4b), and are currently more sexually active (H6b). Hence, our findings suggest that the idea and actual practice of sexual activities are less problematic for romantic asexual individuals, converging with past research showing that asexual individuals differ in their reactions to sexual activities (Carrigan, 2011), and that these individuals can sometimes engage in sexual activity for specific reasons (e.g., pleasing their partner, curiosity, social expectations). These findings should be taken with caution, given that this greater openness to, and practice of, sexual activity by romantic asexual individuals is still rather infrequent, but less so when compared to aromantic asexual individuals. Such perspectives on sexuality also converged with perspectives about relationships. Indeed, romantic (vs. aromantic) asexual individuals had more experience with romantic relationships (H5) and were more likely to be in a romantic relationship (H6a). Again, our results converge with past findings showing that romantic asexual individuals are motivated to establish romantic relationships and seek romantic intimacy (Carrigan, 2011; Scherrer, 2008). Even romantic asexual individuals who were not in a relationship had a stronger desire to have relationships either with (H7a) or without sexual intimacy (H7b) (although the latter were higher than the former among both groups). These findings suggest that these individuals consider that romantic relationships sometimes include sexual activities (Van Houdenhove et al., 2014).

Romantic asexual individuals were also more concerned about their sexual performance (H8a). Asexual individuals likely understand the role of sexuality, particularly with a sexual partner, and that sexual satisfaction may be an obstacle in the development of a romantic relationship (Haefner, 2011; Van Houdenhove et al., 2015b). For example, these individuals may be concerned that their lack of interest in sexual activity can lead to a break-up or even doubt their ability to meet the sexual needs of their partner. Interestingly, and against our original hypothesis (H8b), aromantic (vs. romantic) asexual individuals indicated greater concerns about commitment. Aromantic asexual individuals establish aromantic relationships with significant others (e.g., queerplatonic relationships; Chasin, 2015). Hence, our findings may be explained by a lack of support and visibility of aromantic

relationships. Society tends to value romantic above non-romantic relationships and considers sexual behaviors as a fundamental aspect of those relationships (Chasin, 2015). Having to manage these societal expectations can be particularly intimidating for aromantic asexual individuals, making it difficult to find a significant other and raising concerns about the possibility of being in an aromantic committed relationship.

Extending the proposed link between asexuality and attachment styles (Brotto et al., 2010), our study confirmed the hypotheses that aromantic (vs. romantic) asexual individuals had a more avoidant attachment style (H9a). Drawing from the attachment framework (Simpson et al., 1996), aromantic asexual individuals seem to keep some distance from their romantic partners when compared to romantic asexual individuals. However, the finding that both groups scored similarly in anxious attachment style (supporting H9b) suggests that neither aromantic nor aromantic asexual individuals seem to worry excessively about losing their partner. Comparing both attachment styles for each group, an interesting pattern of results emerged. Aromantic asexual individuals reported a more avoidant than anxious attachment style, which goes in line with Brotto et al.'s (2010) reasoning. Indeed, avoidant individuals feel uncomfortable with closeness and intimacy in romantic relationships (Carrigan, 2011; Scherrer, 2008), which supports the pattern of overall results for aromantic asexual individuals (e.g., more sex-averse, less desire to have a romantic relationship). Although avoidant attachment scores were higher relative to anxious attachment scores in both groups, this difference was less pronounced for romantic asexual individuals. Arguably, these individuals may be relatively more concerned with intimacy and with the possibility of being rejected and abandoned by their romantic partners, when compared to aromantic asexual individuals (for whom intimacy concerns may be more prominent relative to rejection concerns). Although our study did not exclusively focus on attachment and was not designed to explore in detail how asexuality was related to attachment styles, our findings suggest that the association between both constructs is more complex than that proposed by Brotto et al. (2010).

Limitations and Future Studies

Our study was among the first to examine how romantic orientation can help explain some inconsistent findings in asexuality research. However, some limitations must be acknowledged. First, our data were cross-sectional, and we must refrain from establishing causality. Researchers should develop longitudinal studies to understand how the identification with asexuality influences the willingness to seek different types of intimacy with other people, and the development of different relationships. Future studies could also include dyadic data, to understand how partner attributes (e.g., [a]sexual partner) influence the identification with asexuality and the openness to sexual activity. Our study did not examine the extent to which asexual individuals identify with specific labels within the community and how this self-identification is related to romantic orientation. For example, we categorized romantic orientation based on a binary perspective of gender and may have inaccurately categorized asexual individuals who are exclusively attracted to people who fall outside of the gender binary. Further, if demisexual individuals can experience sexual attraction as a result of their emotional bond with a partner, they may have a romantic orientation. In contrast, graysexual individuals rarely experience sexual desire (or maybe unsure if they experience it), and therefore may be closer to the prototype of asexuality and likely have an aromantic orientation. Moreover, our study did not examine how and why aromantic and romantic asexual individuals develop emotionally intimate relationships with other people. Indeed, we were unable to capture the different types of relationships established by aromantic individuals. Moreover, assuming asexuality as a fluid construct, one could also argue that romantic orientation is also fluid. Hence, future studies should consider having more inclusive questions and a continuous measure of romantic orientation, examine how this orientation relates to the willingness to have emotional intimacy, romantic intimacy, or physical intimacy with others, and explore reasons for asexual individuals to develop relationships with others. Lastly, our sample of participants was recruited from multiple social networking groups and was diversified in demographic variables. However, one could question the generalizability of our findings given that these individuals are more knowledgeable about asexuality, take asexuality as a central part of their identity, and can rely on the support of their network. Further, cultural contexts in which asexuality has greater visibility (e.g., North American context) may differ from other contexts in which asexual individuals may need to actively search for information online (e.g., Asian context). Thus, the heterogeneity among asexual individuals can arguably be even broader than what has been reported in the literature.

Conclusion

This study adds to the debate about the conceptualization of asexuality and suggests that asexuality goes beyond the mere absence of sexual attraction to others. Our study also showed that romantic orientation has an important role in the way individuals identify with asexuality, how they construe sexuality and interpersonal relationships, and how they establish emotional and/or romantic intimacy with others. Understanding the characteristics of different subgroups of asexual individuals will contribute to a better understanding of asexuality not only in academia but also in clinical practice. For example, professionals

with greater knowledge about asexuality are more equipped to help individuals struggling with their sexual identity and to promote their psychological health and well-being.

Authors' Contributions ACC and DLR conceived the study, performed the statistical analysis, interpreted the data, and wrote the manuscript; ACC collected the data. Both authors read and approved the final manuscript.

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Data Availability All data and materials that support the findings of this study are available upon request from the corresponding author.

Declarations

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

Ethical Approval All procedures were in accordance with the guidelines issued by the Ethics Committee at Iscte-Instituto Universitário de Lisboa and with the 1964 Helsinki declaration and its later amendments.

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