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Laboratory Sex Research: Perceptions of the Ace Community

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ABSTRACT

Asexuality is a sexual orientation centered around low or absent sexual attraction. Despite the growth of empirical scholarship on asexuality, laboratory sex research with asexual individuals remains significantly underutilized. As such, we conducted a qualitative survey aimed at examining asexual individuals' perceptions of laboratory sex research as well as their perspectives/experiences on participation. Reflexive thematic analysis of 412 responses revealed 4 themes and 10 sub-themes focused on mapping the domain of asexuality, participants' trust, distrust and ambivalence toward laboratory sex research, and developing best practices for overcoming challenges with asexual individuals. A large proportion of asexual individuals emphasized concerns related to the potential medicalization and pathologization of asexuality, with 34.6% exhibiting their unwillingness to participate. Nonetheless, 41.7% of asexual individuals expressed a desire to take part in laboratory sexuality studies. These findings indicate a strong interest in laboratory sex research, driven by the lack of knowledge about ace sexual functioning. To further improve ace individuals' engagement and experience in such studies, a set of participant-driven recommendations was presented. As such, this study highlights the importance of grounding future laboratory sex research with asexual individuals in ethical and reliable procedures.

Since the exclusion of homosexuality from the Diagnostic and Statistical Manual of Mental Disorders (DSM) in 1973, the scientific literature has come a long way from pathologizing to accepting individual differences in gender expression and sexuality, acknowledging that sexual orientation could not be reduced to the binary same-opposite sex attraction (Savin-Williams, 2006; Yule et al., 2017a). This led to a reevaluation of some existing sexual orientation labels and the introduction of several new ones, with asexuality being one of the latest additions (Savin-Williams & Vrangalova, 2013; Savin-Williams et al., 2017; van Anders, 2015).

Asexuality is a sexual orientation characterized by low or absent sexual attraction (Hille, 2023). "Asexual" (or Ace) is an umbrella term that encompasses multiple different identities under the asexual spectrum, such as demisexual (experience sexual attraction only after establishing deep emotional bond), graysexual (experience sexual attraction rarely or with low intensity), aegosexual (experience disconnection between themselves and the subject of sexual arousal), aceflux (sexual orientation fluctuates along the ace spectrum), etc. Asexuality is often referred to as an invisible orientation, highlighting low societal awareness and unrecognition of its existence (Bogaert, 2015; MacNeela & Murphy, 2015). Even in scientific studies of sexuality, the option to identify as asexual is often absent or grouped with other self-identifying labels. Such "asexual erasure" may happen due to the relative novelty of the ace labels and the extremely low number of people who identify as asexual. Indeed, one of the first scientific studies of asexuality conducted by Bogaert (2004)

reported that asexual individuals compose approximately 1% of the population. More recent estimates show that this number could range from 0.4% to 3.3% of the population, but the data are still scarce and require precision (Greaves et al., 2017; Höglund et al., 2014). However, during the past 20 years, scientific interest in asexuality has been increasing with more research being done on various aspects of asexual orientation.

To date, most ace studies are predominantly qualitative or descriptive, deriving from multidisciplinary scientific fields. Researchers have just started to explore the topics of asexual identity development (Kelleher & Murphy, 2024; MacNeela & Murphy, 2015; Mandigo & Kavar, 2022; Scherrer, 2008; Van Houdenhove et al., 2015), asexual coming out (Robbins et al., 2016), sexual attitudes, relationships, and behaviors (A. C. Carvalho & Rodrigues, 2022; Clark & Zimmerman, 2022; Copulsky & Hammack, 2023), and the intersection of asexuality and gender (Gupta, 2019). Some studies have suggested that ace individuals do not always assign sexual acts (e.g., masturbation, kissing, cuddling) with a primary sexual meaning (Scherrer, 2008; Van Houdenhove et al., 2015). Other studies revealed that asexual individuals reported the absence of any romantic interest (aromantic aces), a desire for romantic but not sexual partnerships (romantically oriented aces), or romantic interest coupled with some form of sexual relationships (M. Dawson et al., 2016; de Oliveira et al., 2021; Tessler, 2023; Vares, 2018). Moreover, some individuals have created their own forms of asexual companionships (e.g., queer-platonic relationships; Tessler, 2023).

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Recently, there is increasing scientific interest in quantifying some aspects of the asexual experience, such as psychological well-being (Barreto & Boislard, 2023; Greaves et al., 2017), distress and discrimination (Barreto & Boislard, 2023; Boot-Haury, 2023; Brandley & Dehnert, 2024; Chan & Leung, 2023), mate preference (Edge & Vonk, 2024; Scheller et al., 2023), and sexual arousal patterns or basic psychological processes (e.g., attention, perception) captured through laboratory techniques (Bradshaw et al., 2021; Brotto & Yule, 2011; N. B. Brown et al., 2021; Bulmer & Izuma, 2018; Milani et al., 2023; Skorska et al., 2023).

To date, a few laboratory studies measuring genital/psychophysiological arousal in asexual individuals demonstrated that asexual men responded with higher genital and self-reported sexual arousal to sexual fantasy as compared to erotic clips (Skorska et al., 2023), while genital arousal was elicited by preferred and non-preferred sexual stimuli in both asexual and heterosexual women (Brotto & Yule, 2011). Also, asexual women revealed an interoceptive awareness regarding their sexual arousal patterns, challenging the notion that they may suppress sexual urges (Brotto & Yule, 2011; Cerankowski & Milks, 2014). However, these studies are characterized by small sample sizes. According to S. J. Dawson et al. (2019), approximately 48% of women and 66% of men in a predominantly heterosexual sample reported their willingness to participate in any type of sexual psychophysiology study. Considering individual differences that predict the desire to participate (more positive sexual attitudes, more sexual experience, identifying as a man), the numbers could be even smaller among the asexual individuals.

Findings on attentional processes revealed that asexual women and non-binary individuals, but not asexual men, tend to exhibit initial attention bias (automatic and unconscious preference) toward sexual cues (Bradshaw et al., 2021; Milani et al., 2023). As for their controlled attention patterns (conscious and deliberate attentional allocation), the results are mixed, with one study reporting a complete absence of controlled attention bias among asexual women (N. B. Brown et al., 2021) and another registering smaller bias compared to heterosexuals (Milani et al., 2023).

Taken together, these results suggest that experimental and laboratory research focusing on asexuality constitute an essential part of sexuality studies. Indeed, compared to other scientific methods, and considering its questionable ecological validity, laboratory sex research combines participant observation and experimental manipulation, creating the possibility for exploring cause-and-effect relationships and contributing to unraveling the complex and multifaceted nature of human sexuality (J. Carvalho, 2022). It also helps reveal subjective and physiological determinants of sexual arousal with a specific focus on their joint interactions in the individual sexual response. Thus, laboratory sex research methods represent a promising tool for studying asexuality, given their ability to uncover cognitive processes behind the different sexual acts, corroborating or complementing the data from ace individuals' self-reports. Findings from laboratory sex research can also improve mental health and sexual well-being among asexual individuals by providing resources for better healthcare and reducing stigma around asexuality

(Schneckenburger et al., 2024). Moreover, since sexual rights are part of human rights, laboratory research can help fulfill asexual individuals' right to comprehensive information and education about their sexuality, promoting informed decision-making regarding their sexual and reproductive behaviors.

Some of the experimental paradigms usually tested in the laboratory now could also be tested online with software that has been developed for that purpose. However, certain components of sexual response, including psychophysiological, neural, and pre-conscious mechanisms, can only be studied inside the laboratory. Furthermore, while sex research on best practices with the LGBT+ population is still developing (Durso & Gates, 2013; Reed, 2023), asexuality-specific needs remain largely overlooked. As such, more inclusive laboratory practices that specifically address asexual individuals should be implemented. The exclusion of asexuality from laboratory sex research, on the other hand, can inadvertently signify its irrelevance for sexual health. This may also create a distorted image of human sexuality skewed toward the allosexual end of the continuum.

It is well documented that ethical considerations set sexuality apart from other fields due to the inherently sensitive nature of sexual topics (Masters et al., 1977). These considerations hold additional relevance for asexual individuals who, within the realm of laboratory sex research, might be exposed to stimuli that they consider distressing. Therefore, given asexual individuals' unique position regarding sexuality, it could be beneficial for researchers to explore how asexual individuals perceive their role in this type of study. Indeed, asexual individuals are known to show less interest in engaging in different sexual practices and report lower frequencies of sex and masturbation compared to allosexuals (de Oliveira et al., 2021; Yule et al., 2017b). Several studies also report that they have fewer sexual fantasies, and these fantasies are usually self-detached, not involving asexual individuals themselves (Bogaert, 2015; Yule et al., 2017b). Another aspect important for researchers to consider is asexual individuals' attitudes to sex, with only a small number of asexual individuals identifying as sex-favorable¹ and others endorsing sex-neutral, sex-averse, or sex-repulsed sexual attitudes (Bulmer & Izuma, 2018; Clark & Zimmerman, 2022; Copulsky & Hammack, 2023; Scherrer, 2008), which means that exposing them to sexual content may be potentially problematic. As such, ace participation in laboratory sex research presents a number of distinct procedural, methodological, and ethical challenges. By examining asexual individuals' stances regarding participation in laboratory studies of sexuality, we can advance the research ethics, policies, and laboratory practices with this population.

Objectives

The main goal of our study was to understand how asexual individuals perceive themselves as participants in laboratory

¹The term "sex-favorable" or "sex-positive" refers to asexual individuals who, despite their absence of sexual attraction, have an interest in or enjoy sex (Clark & Zimmerman, 2022). Currently, a very small body of literature exists on their sexual experiences.

sexuality research. Specifically, the study aimed at answering the following research questions: 1) How do ace individuals without prior experience in laboratory sex research perceive such studies and what are their perspectives on participation? 2) What perceptions of laboratory sex research are shared by asexual individuals who previously took part in such studies? It is expected that this study will guide future laboratory and experimental research with asexual individuals, ensuring it is sensitive and inclusive of asexual participants. Accounting for asexual individuals' perspectives while designing experimental trials can also help researchers improve the ethics of laboratory sexuality practices by reducing unnecessary psychological distress that such research may unintentionally cause to asexual individuals. Additionally, the ability to express their own thoughts and feelings can empower asexual individuals by allowing them to act like agents influencing and co-constructing scientific research rather than being passive subjects of sexological experiments and, subsequently, it can enhance trust and reliability in future studies by increasing their credibility and encouraging more asexual individuals to participate in them. This may also be helpful for the reduction of volunteer bias, which is common in laboratory sexuality studies (S. J. Dawson et al., 2019), by countering commonly held myths about laboratory sex research and consequently attracting more representative samples of asexual participants. Finally, knowledge of asexual individuals' perceptions of their role in laboratory sexuality studies can help us uncover more subtle features of human sexuality that may be overlooked in studies of other sexual orientations and, thus, improve not only our understanding of the spectrum of asexualities but human sexuality as a whole.

Method

Data Collection Procedures

This study received approval from the Ethical Committee of the University of Porto (Comissão de Ética (CE) da Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto) and from the AVEN Project Team. Research data were collected through an open-ended questionnaire exploring how asexual individuals appraise being participants in laboratory sex research. The questionnaire was designed in a way to offer participants the freedom to share as little or as much information as they desired when answering each open-ended question, which led to a wide range of responses, with some participants providing extensive elaborations while others offering single-word or brief replies. The format of an open-ended questionnaire enabled us to access rich and complex accounts of the survey participants, utilizing their own language and terminology. It also allowed us to recruit a larger number of asexual individuals compared to other qualitative methods (e.g., interviews and focus groups) and to attract a diverse representation of the asexual community.

The survey included questions regarding participants' sociodemographic information (age, ethnicity, country of residence, average income, religion, education, perceived social class, occupational status, history of sexual activity, sex assigned at birth, gender, sexual orientation, romantic

orientation, and relationship status), frequency of masturbation, frequency of engagement in sexual activity, and sexual and romantic attraction (see Table 1 for response options). All the questions were formulated in a manner that could be easily understood by participants and provided descriptions where necessary to ensure a common interpretation of the concepts, e.g., "How often do you have sex (penetrative sex, oral or manual stimulation of your or your partner's genitalia)?" Most of the questions also included a free response option that allowed us to gather an abundance of nuanced information on survey participants.

Two separate sets of qualitative-oriented questions: (1) for participants with previous experience in lab sex research and (2) for participants without this type of experience, were further included. Additionally, our methodological design also involved the creation of two short vignettes. The initial overarching question that drove this study was narrowed down with a set of more specific open-ended questions about asexuality as a subject of general inquiry, participants' thoughts and feelings toward laboratory sex research in general, as well as their thoughts and feelings in regard to participating in such research (see Table 2).

Participants

Data for the current study were collected between March 9 and March 31, 2023. The survey was hosted in Qualtrics and distributed through the general discussion board on the Asexual Visibility and Education Network (AVEN) and through various asexual communities on social media (Facebook, Instagram, Reddit, and Twitter). Study inclusion criteria were being 18 years or older, identifying with any label under the asexual umbrella, and being able to read and write in English. During the data collection, we followed a purposive sampling approach based on a maximum variation rationale (Coyne, 1997; Marshall, 1996). The sample size was determined in a way that allowed us to capture a large diversity of the asexual community (variety of labels for sexual and romantic self-identification, different attitudes toward sex, various cultural backgrounds, etc.) while at the same time accounting for the re-occurring patterns of information related to our research question (Braun & Clarke, 2021b).

The survey was opened 798 times, and 418 participants provided an answer to all study questions. The majority of those who withdrew from the survey had not given any responses or answered only sociodemographic questions. After further examination, 6 participants were excluded from the analysis as they did not meet the inclusion criteria: two of them were minors (15 and 16 years old), and four identified only with allosexual labels (two as heterosexual and two as bisexual). The final sample consisted of 412 individuals from 31 countries (see Table 1 for specification).

The age of the participants ranged between 18 and 78 years ($M = 28.08$; $SD = 8.6$). The sample was diverse in terms of gender and sexual orientation, romantic orientation, and socioeconomic status (see Table 1). Most of the participants identified as cisgender women ($n = 194$) or nonbinary individuals ($n = 82$). Regarding sexual orientation, 277 participants

Table 1. Sociodemographic characteristics and frequency of sexual behavior of the sample.

Variable	Value	Variable	Value
Age M, SD	28.08 (8.6)	Country of residence <i>N</i> (%)	
Sex assigned at birth <i>N</i> (%)		Asia	19 (4.6)
Female	360 (87.4)	Australia and New Zealand	11 (2.7)
Male	46 (11.2)	Europe	141 (34.2)
Third-sex or other	6 (1.4)	Latin America	3 (0.7)
Gender identity <i>N</i> (%)		USA and Canada	238 (57.8)
Cisgender man	29 (7.1)	Education <i>N</i> (%)	
Cisgender woman	194 (47.1)	Junior high school or lower	8 (1.9)
Non-binary	82 (19.9)	Senior high school	110 (26.7)
Transgender (man or woman)	14 (3.4)	College degree	192 (46.6)
Genderqueer	36 (8.7)	Postgraduate or higher	102 (24.8)
Agender	17 (4.1)	Occupation status <i>N</i> (%)	
Other	40 (9.7)	Student	159 (38.6)
Sexual orientation <i>N</i> (%)		Employed part-time	56 (13.6)
Asexual	277 (67.2)	Employed full-time	154 (37.4)
Demisexual	33 (8)	Unemployed	41 (9.9)
Graysexual	39 (9.5)	Retired	2 (0.5)
Multiple labels/Other	63 (15.3)	Annual income <i>N</i> (%)	
Romantic orientation <i>N</i> (%)		below 10,000 \$	75 (18.2)
Aromantic	155 (37.6)	10000 20,000 \$	73 (17.7)
Demi-romantic	62 (15)	20000 30,000 \$	54 (13.1)
Bi-romantic/panromantic	67 (16.3)	30000 40,000 \$	43 (10.4)
Hetero-romantic	44 (10.7)	40000 50,000 \$	39 (9.5)
Homo-romantic	27 (6.6)	more than 50,000 \$	128 (31.1)
Multiple labels/Other	57 (13.8)	Perceived social class <i>N</i> (%)	
Ethnicity <i>N</i> (%)		Upper class	7 (1.7)
East Asian	10 (2.4)	Upper middle	75 (18.2)
South Asian	6 (1.5)	Middle class	155 (37.6)
Southeast Asian	15 (3.6)	Lower middle class	77 (18.7)
Black/of the African Diaspora	2 (0.5)	Working class	77 (18.7)
Black Caribbean	2 (0.5)	Lower class	21 (5.1)
Hispanic/Latino/Chicano	14 (3.4)	Relationship status <i>N</i> (%)	
Jewish	17 (4.1)	In relationship	91 (22.1)
Middle Eastern/West Asian	3 (0.7)	Single	321 (77.9)
Mixed Race/Multi-Racial	24 (5.8)	Religion <i>N</i> (%)	
North American Native	2 (0.5)	Atheism/Agnosticism	280 (68)
White or of European Descent	310 (75.2)	Christianity	64 (15.5)
Other	7 (1.7)	Other	68 (16.5)

The sample consisted of 412 asexual individuals from 31 countries: United States, Canada, Germany, United Kingdom, Denmark, Spain, Philippines, France, Sweden, Iceland, New Zealand, Australia, Poland, Austria, Finland, Italy, United Arab Emirates, Romania, Israel, Malaysia, India, Brazil, Estonia, Malta, Argentina, Nepal, Ireland, Netherlands, Venezuela, Belgium, and Czech Republic.

Table 2. Vignettes presented to asexual individuals with and without the experience of participating in laboratory sex research.

Purpose	Vignette content
To provide a definition of laboratory sex research for all participants*	Laboratory sex research consists of the application of experiments and laboratory metrics such as psychophysiological assessments, measurement of individuals' motor responses or brain activity toward stimuli to the study of fundamental processes underpinning sexual (dys) function or behavior. Those processes are usually captured by the cognitive and emotional responses involved in the processing of sexual stimuli, usually presented in the form of pictures, film clips, or narratives. With those methodologies, researchers can evaluate low-order (e.g., automatic responses toward a sexual stimulus) and high-order (e.g., conscious decisions in the sexual context) phenomena, unveiling both adaptive and non-adaptive processes in sexual function and sexual behavior.
To give a brief description of a hypothetical study for individuals without experience in laboratory sex research	Imagine now that you are participating in laboratory sex research on asexuality. The goal of the study is to understand how asexuals process sexual information. You are sitting alone in a private room. A computer screen with a set of sexual and neutral pictures is placed in front of you. The researcher instructed you to pay attention to the screen. While doing the task, eye-tracking equipment follows your eyes' every move, and a face-reading scanner captures your emotional reactions.

*We used a slightly modified version of the experimental sex research definition provided in the article by J. Carvalho (2022). This particular definition was chosen because it comprehensively captures the complexity and broad implications of laboratory sex research, providing the reader with a general understanding of what such studies could entail.

reported being asexual, 39 graysexual, 33 demisexual, and 63 chose multiple options or other labels. Participants' patterns of sexual behavior are presented in Table 3.

The literature consistently highlights high heterogeneity inside the asexual community, which includes multiple self-identified labels developed around the central concept of

sexual attraction (de Oliveira et al., 2021; Hille, 2023). However, little is known about the internal homogeneity inside these groups. To explore this, we asked participants how often they experienced sexual attraction toward men, women, and gender non-conforming individuals in the past year. Their responses were then analyzed and organized

Table 3. Frequencies of sexual behaviors of the asexual individuals.

Variable, N (%)	Value
Sexual activity in the past	
Yes	170 (41.7)
No	242 (58.3)
Masturbation frequency	
Do not masturbate	100 (24.3)
Once/month	70 (17)
2–3 times/month	81 (19.6)
Once/week	58 (14.1)
2–4 times/week	86 (20.9)
Once/day	16 (3.9)
More than once/day	1 (0.2)
Sexual activity frequency	
Do not engage in sex now	360 (87.4)
Once/month	20 (4.9)
2–3 times/month	10 (2.4)
Once/week	16 (3.9)
2–4 times/week	5 (1.2)
Once/day	1 (0.2)

Table 4. Asexuals', demisexuals', and graysexuals' frequency of sexual attraction towards men, women, and non-binary individuals.

Attraction frequency	Subject of sexual attraction		
	Men	Women	NB*
Asexuals (n = 277)			
Never	93.91%	93.2%	92.03%
Rarely/less than once in 3 months	3.57%	4.74%	5.12%
Sometimes/every 2-3 months	0.28%	0.77%	1.62%
Regularly/monthly	0.42%	0.56%	0.7%
Unsure	0.83%	0.6%	0.32%
In relationship context	0.67%	0.12%	0.21%
Only in fantasy	0.32%	0%	0%
Graysexuals (n = 39)			
Never	44.38%	48.04%	64.59%
Rarely/less than once in 3 months	42.57%	31.04%	23.82%
Sometimes/every 2-3 months	6.84%	11.19%	7.68%
Regularly/monthly	0%	3.72%	0.66%
Unsure	0%	0%	3.26%
In relationship context	0%	2.52%	0%
Only in fantasy	6.21%	3.48%	0%
Demisexuals (n = 33)			
Never	39.77%	62.96%	65.55%
Rarely/less than once in 3 months	16.68%	21.41%	14.21%
Sometimes/every 2-3 months	4.91%	7.79%	11.07%
Regularly/monthly	11.78%	0%	0.45%
Unsure	0%	0%	0%
In relationship context	26.85%	7.83%	8.71%
Only in fantasy	0%	0%	0%

Non-binary individuals, trans individuals.

into seven groups (see Table 4), with some categories occasionally overlapping. Since no specific guidelines were provided for reporting sexual attraction frequencies, participants' responses varied – some provided detailed estimates (e.g., times per month or year), while others used abstract terms (e.g., often or rarely) to describe their experiences. All responses were then categorized according to the structure outlined in Table 4. Given the lack of uniform reporting, we acknowledge that alternative categorization approaches could have been applied. Additionally, due to the high variability in gender identification among our participants, we broke down their attractions only by the gender of the person of their sexual interest. The results revealed that most individuals who identified as asexual reported no sexual attraction to anyone in the past year. Among graysexuals, 44.38% reported no and 42.57% rare sexual attraction to men, and even fewer

participants indicated attraction to women (48.04%) and gender non-conforming individuals (64.59%). Interestingly, approximately 10% of graysexual individuals reported experiencing sexual attraction only to fictional characters, more often male (6.21%) than female (3.48%). Demisexual individuals were more likely to indicate sexual attraction toward men than toward women or gender non-conforming individuals, with many specifying that their attraction emerged only after forming a deep emotional bond with the partner. Demisexual participants also experienced sexual attraction more frequently than asexuals and graysexuals. Overall, the results suggest that the labels “asexual,” “graysexual,” and “demisexual” form relatively consistent groups according to their Ace community definitions, with asexuals reporting no sexual attraction, graysexuals experiencing no to little sexual attraction, and demisexuals developing sexual attraction in a relationship context.

Data Analysis

Data were analyzed using Reflexive Thematic Analysis (RTA), which is a flexible and interpretative approach to making sense of qualitative data (Braun & Clarke, 2006, 2021a). We followed the Reflexive Thematic Analysis Reporting Guidelines (RTARG), where the coding process is understood as open and organic and does not require the use of a specific theoretical framework (Braun & Clarke, 2024). Unlike other forms of thematic analysis, RTA facilitates researchers' active and thoughtful engagement in the coding process to establish patterns of shared meaning across the dataset, which is why codes are not expected to be found; they are instead developed through the researchers' immersion and interaction with the data (Braun & Clarke, 2021a). By adopting this analytical approach, we based our analysis primarily on semantic coding with a few latent codes and followed six recursive stages (Braun & Clarke, 2006). Before the analysis, we immersed ourselves in the data, reading and rereading participants' responses multiple times. After that, we began initial data coding by systematically identifying relevant features in the responses and organizing them into potential themes. These themes were further reevaluated, renamed, and refined to reflect coherent narratives within the data. The codes were also reorganized and reassigned to the final thematic structure. In the last stage, we crafted the analytical report, integrating the themes with relevant quotations and contextualizing the findings within the literature. The QSR NVivo 12 software program (Jackson et al., 2019) was used to help us organize the dataset and consequently visualize and identify meaningful relationships between codes, sub-themes, and themes.

We followed an inductive approach and used the data as a starting point for subsequent theory development. However, acknowledging that analysis cannot be conducted in a theoretical vacuum, we addressed our research question within a constructionist framework where language is not expected to reflect reality but instead is used to construct it (Byrne, 2022). Given the lack of data on ace perceptions of laboratory sex research, we committed to an experiential orientation to data interpretation, focusing on the lived experiences of our participants and the personal meanings attached

to them (Braun & Clarke, 2022, 2024). This orientation is primarily grounded in critical realist ontology, acknowledging the role of researchers' own perspectives and backgrounds in the interpretation of the results. As social constructionism encourages researchers' reflexivity, we would like to emphasize that our perspectives were informed by insider-outsider positions to asexual identities, with one researcher identifying as asexual and the other two as allosexuals, which have shaped the way the study was designed and analyzed. Specifically, one researcher emphasized the need for knowledge of the internal mechanisms that underpin her asexuality and the ways of making lab sex research more inclusive of ace participants. Another researcher found a common bridge between her bisexuality and some features of the ace experience and, building on these similarities, prioritized the value of participants' trust in science.

The survey yielded a rich and diverse output of participants' responses, from which we developed a set of 68 initial codes. During the analysis, we consistently moved back and forth within the dataset, reorganizing the coding structure and removing the redundant codes until the final coding scheme consisting of 41 codes (Table 5) was established. In our analysis, we did not follow a codebook approach by strictly defining and

giving detailed descriptions of the content of themes and codes, but in adhering to the principles of RTA, we have provided a structured and nuanced visual representation of our coding scheme that enhances the rigor of our analytic narrative. A single participant's response was chosen as a unit of analysis and was then assigned one or several codes in NVivo, ensuring the codes' consistency within the whole dataset. Interrelated codes were then grouped together into sub-themes and eventually into themes that allowed us to prioritize meaning and meaningfulness over the frequencies and recurrences in the coding process.

Results

Our analysis yielded four themes and 10 sub-themes (see Table 5). The theme **Mapping the domain of asexuality** provides a foundation for understanding why research on asexuality is necessary and what specific areas need exploration, helping contextualize the perspectives of asexual individuals on participating in laboratory sex research and shedding light on their unique experiences and needs. The theme **Putting trust in sex lab research** illuminates asexual individuals' positive, neutral, and ambivalent perceptions of

Table 5. Study coding scheme.

Main Themes	Sub-themes	Codes
1. Mapping the domain of asexuality	1.1. Societal awareness	Unacknowledged orientation Stigmatized identity Limited resources for self-identification Community-based knowledge
	1.2. Existing scientific knowledge	Understudied identity Emerging field of ace studies
	1.3. Knowledge gaps	History and prevalence of asexuality Asexuality as a spectrum Ace relationships Neurodivergence and disability Etiology of asexuality Physical and mental health factors of asexuality Asexual discrimination and resilience Intersection of asexuality with other sexual and gender identities
2. Putting trust in sex lab research?	2.1. Ambivalent and non-evaluative frames	Absence of associations Sexual behavior in laboratory settings Neurobiological approach Experimental sexology practice Non-experimentally-oriented
	2.2. Perks of being a participant in lab sex research	Self-discovery Enhancing knowledge, understanding and representation of asexuality Financial reward Favorable attitudes toward sex Positive feelings (Interest, Curiosity, Varying degrees of comfort, Eagerness to overcome discomfort)
3. Something off with sex lab research	3.1. Frames of doubt and distrust	Mechanical approach Medicalizing and pathologizing Untrustworthiness of design, validity, and impact Incompatibility with asexuality
	3.2. Dangers of participation	Observer effect Negative feelings (Awkwardness, Anxiety, Anger, Embarrassment, Repulsion, Boredom, Fear, Varying degrees of discomfort, Disgust, Creepiness) Aversive attitudes toward sex High intensity of sexual stimuli
4. Best practices for overcoming challenges with asexual participants	4.1. Pre-study processes	Pre-briefing on general study whereabouts Implement pre-screening strategies
	4.2. Study design	Engage ace voices in your research Implement an ethically sound, rigorous, and unbiased approach Create withdrawal and skipping protocol Develop a study design with alternative types of stimuli
	4.3. Unique ace challenges	Concern with well-being and inclusion of sex-repulsed/averse aces Consider undirected sexual drive and non-sexual pleasure No gold standards for being ace

participation in laboratory sex research, uncovering benefits that may stem from such participation. The third theme **Something off with sex lab research** reflects participants' distrust for laboratory studies of sexuality and possible negative outcomes for asexual individuals taking part in them. Together, the second and third themes offer insights into their decision-making process related to their engagement with laboratory sex research. By adhering to asexual individuals' perspectives, the final theme **Best practices for overcoming challenges with asexual participants** offers practical tips for future laboratory studies on asexuality. Below, we provide a detailed description of each theme illustrated with participants' quotations. As the Qualtrics survey was completely anonymous, no information can directly be connected to any participant.

Theme 1: Mapping the Domain of Asexuality

The theme **Mapping the domain of asexuality** aggregates responses that assess the state of existing societal and scientific knowledge on asexuality, including current research gaps. The first sub-theme **Societal awareness** incorporates appraisals of social recognition and understanding of asexuality, underscoring the necessity of enhancing public knowledge on this subject. A notable number of participants referred to asexuality as an "unacknowledged orientation," highlighting its invisibility, misunderstanding, and lack of acceptance by the common public (*I think there's a pretty limited understanding of what asexuality actually means and how diverse we are. It doesn't seem to be taken quite as seriously as other identities*, 24-year-old woman, demi-sexual, hetero-romantic, USA). A significant number of participants mentioned that asexual individuals share a "stigmatized identity" often described by lay people and health professionals as abnormal or pathological (*I think a lot of doctors and counselors still don't see it as a legitimate sexual orientation and think that it's just a symptom of a medical or psychological problem, so it's not studied as an orientation but rather as an illness or condition*, 35-year-old assigned female at birth, asexual, aromantic, Canada). Many participants also pointed to their "limited resources for self-identification," emphasizing that scarcity of information on asexuality can prevent or inhibit self-categorization as asexual (*I'm aegosexual. That was painfully confusing for several years, and I didn't know if I was gay/straight or bi, I didn't know there was another option, and when I learned of asexuality, I didn't relate to that either until I found the definition of aegosexuality*, 38-year-old woman, aegosexual, aromantic spectrum, Iceland). Some responses focused on the "community-based knowledge" where asexual individuals are perceived as the main generators of the existing knowledge on asexuality (*I think the knowledge we have on asexuality is mainly from asexuals themselves and less from academia, which is not inherently a bad thing. However, because most (from my perspective) accurate information can be found on niche parts of social media, there is a huge lack of understanding of what asexuality is beyond those interested in queer topics*, 22-year-old woman, asexual, homoromantic, Germany).

Within the second sub-theme, **Existing scientific knowledge**, we identified responses that assess the efforts to enhance a scientific understanding of asexuality. A majority of participants called attention to a small number of scholarly works on

asexuality, highlighting that it is a significantly "understudied identity" (*I am part of an association of asexual people who often give talks about the subject. We find it hard to find studies about the subject when we want to back up our personal experiences*, 34-year-old non-binary, asexual, aromantic, Denmark). Interestingly, participants often associated a lack of scientific studies of asexuality with low public awareness about it, illustrating the interconnection between scientific and societal knowledge production. Indeed, difficulties with self-identification as asexual were mainly attributed to the scarcity of scientific knowledge about asexuality.

A minority of responses perceived a body of scientific literature on asexuality as growing, welcoming an "emergent field of ace studies" (*... I've noticed an increase in more asexual research being done, nowadays. Asexuality might not be as well-studied compared to other types of research, but I'm feeling hopeful that there's always room for improvement to expand knowledge in the field about asexuality*, 37-year-old, questioning, asexual, USA).

The third subtheme **Knowledge gaps** encompasses highly needed yet understudied research areas from the perspectives of asexual individuals, some of which could be explored through laboratory studies of asexuality. A large portion of responses focused on "asexuality as a spectrum," wondering about the sexual functioning, attraction types, and identities under the ace umbrella (*The libido in asexuality is something I'm really curious about. I have just read how some aces have more libido than others, but it would be great to know how libido affects the experiences of aces and if it makes them more sex favorable or not. I think that would be a good resource to have as an ace person*, 20-year-old non-binary, asexual, aromantic, Venezuela). A notable number of responses emphasized the importance of information about "asexual discrimination and resilience," including various forms of ace stigmatization, pressure coming from allonormativity, and practical strategies to cope with them.

Many participants also pointed to the lack of common knowledge about "physical and mental health factors of asexuality." A significant number of asexual individuals mentioned the "intersection of asexuality with other sexual and gender identities," namely, sexual and romantic orientations and various gender categories. Other responses focused on the "history and prevalence of asexuality," being interested in historical representations of asexuality and its percentages in the general population. Notably, some participants believed that scientific studies of asexuality should not go far beyond its prevalence, implying that further investigations may lead to the medicalization of asexuality.

A considerable number of participants wondered about the "etiology of asexuality," wanting to uncover the origin of their sexual orientation. A large number of asexual individuals highlighted the lack of knowledge about "ace relationships," including romantic, queerplatonic, and platonic partnerships. Some participants also required information about "neurodivergence and disability."

Theme 2: Putting Trust in Sex Lab Research?

The theme **Putting trust in sex lab research?** incorporates responses that appraise mental representations of laboratory

sex research in an ambivalent or neutral manner and describes factors that can facilitate ace participation. Within its first sub-theme **Ambivalent and non-evaluative frames**, we found a large number of responses that encompass participants' associations in connection to laboratory studies of sexuality, which are descriptive or uncertain. A significant number of asexual individuals reported the absence and vagueness of their associations with the term "laboratory sex research," pointing to their unfamiliarity with the method (*None. I don't even know how to interpret that phrase*, 20-year-old non-binary, asexual, bi-romantic, USA). A large share of responses appraised laboratory sex research as "experimental sexology practice," emphasizing the psychophysiological side of sexuality studies (*Researchers showing porn to study volunteers and using bio-tracking devices to track arousal*, 30-year-old woman, asexual, aromantic, USA). A notable number of participants focused on behavioral measurements of solo and partnered sexual activity, describing laboratory sex research as "sexual behavior in laboratory settings" observed by researchers. Some individuals viewed laboratory sex research as "non-experimentally oriented," highlighting qualitative methods of studying sexuality or expecting the use of psychometric tests. Other participants perceived laboratory sex research through a "neurobiological lens" focusing on brain studies and measurements of neuronal activity (*Monitored brain activity in response to various situations*, 32-year-old woman, graysexual, hetero-romantic, Canada).

Within the second sub-theme **Perks of being a participant in laboratory sex research**, we can identify responses that highlight emotional and motivational factors encouraging asexual individuals to take part in laboratory-based sexuality studies. A notable number of participants experienced "positive feelings" articulated through a range of emotions: "varying degrees of comfort," "interest," "eagerness to overcome discomfort," and "curiosity." Paradoxically, some participants who experienced interest in the study were also questioning the study design, demonstrating ambivalence toward sex research. A large number of participants entrusted researchers with "enhancing knowledge, understanding and representation of asexuality" through participation in laboratory studies (*If my participation can help people understand asexuality better and maybe accept it more, then I'd be glad to help*, 25-years-old agender, under both non-binary and transgender umbrella, asexual, aromantic, Germany). Interestingly, some participants were even willing to agree to step out of their comfort zone in order to increase knowledge on asexuality. A portion of ace individuals were motivated to participate in laboratory sex research to gain relevant information of personal value, contributing to their "self-discovery" journey (*I want to be part of something that will help me understand myself better*, 27-year-old woman, asexual, bi-romantic, Canada). A minority of participants referred to their "favorable attitudes toward sex" characterized by more positive or neutral appraisal of sexual information as encouraging participation (*I would likely be mostly comfortable, as I'm not sex-repulsed and I've been exposed to a lot of sexual content and ideas before*, 39-year-old non-binary, asexual, aromantic, Canada). A few individuals mentioned "financial reward" as a motivational incentive for taking part in laboratory studies of sexuality.

Theme 3: Something Off with Sex Lab Research

A theme **Something off with sex lab research** encompasses responses that express distrust and suspicion toward laboratory sexuality studies, with the emphasis on factors that can inhibit ace participation. The first sub-theme **Frames of doubt and distrust** includes asexual individuals' concerns that cast a shadow on their engagement in laboratory sex research. A notable share of responses centered around criticizing the methodological premises of lab research on asexuality, highlighting the "untrustworthiness of their design, validity, and impact" (*It's ridiculous. My emotions inside aren't what I show. If my brain reacts in a way to laboratory sex research, it's not the way researchers think. And I would be angry to take part in such research, so it just wouldn't work*, 30-year-old man, graysexual, hetero-romantic, Canada). Many participants framed laboratory sex research in a context of dehumanizing and discriminating practices in the medical and psychological fields, performed with a "medicalizing and pathologizing" lens in mind (*Standing in a brightly lit and empty space with electrodes strapped to my body. As a wide variety of pornographic images goes by, a lab technician keeps saying, "Just push the button when you feel something." They say it again and again, becoming increasingly frustrated because I don't push the button. As they pull off the electrodes, I jump and push the button. I am then mislabeled as a sexual deviant who is only aroused by pain*, 35-year-old non-binary, asexual, aromantic, USA). Some participants perceived laboratory sex research as "incompatible with asexuality," emphasizing the need to have sexual attraction and actively engage in sex to be eligible for this type of study (*Lol doesn't apply to me; I'm not having sex*, 33-year-old non-binary, asexual, bisexual, gray-romantic, queer, USA). A few responses also referred to a "mechanical approach" toward sexuality, which they attributed to laboratory sex research, describing it as an automatic, machine-like activity that suppresses subjects' agency.

The second sub-theme **Dangers of participation** focuses on individual and methodological factors that can discourage asexual individuals from taking part in laboratory sex research. A considerable number of responses encompassed "negative feelings" expressed through a range of affective reactions: "varying degrees of discomfort," "awkwardness," "anxiety," "embarrassment," "disgust," "boredom," "fear," "anger," "repulsion" and "creepiness." Many responses were in line with an "observer effect," expressing a fear of being watched, analyzed and having their privacy violated by researchers as a factor preventing ace participation or constraining it through the increase of self-conscious behavior (*The idea of partaking in this study is not entirely repulsive, but I do not think I would be comfortable having my viewing of sexually explicit content taken for data. It feels somewhat exposing, and I usually don't like the idea of people watching me do any sort of task, let alone this sort of thing*, 21-year-old genderqueer, asexual, homo-romantic, USA).

Some participants emphasized their "aversive attitudes toward sex," which would make participation in laboratory sex research particularly distressing (*I can't look at a kiss, the noise disturbs me. I would not handle this kind of research as participant*, 32-year-old woman, asexual, heterosexual, hetero-romantic, Canada). An almost equal number of responses

highlighted how “high intensity of sexual stimuli,” such as high explicitness, non-consensuality of depicted sexual interactions, and length of exposure, could inhibit ace participation (*I would be extremely uncomfortable. As I said previously, brief nudity is ok, and soft sex scenes in movies are ok too, but “real” sex scenes (not romanticized) and, especially, focused on genital interactions would make me very uncomfortable. I don’t think I would be able to watch*, 22-year-old genderqueer, asexual, demi-romantic, Canada).

Theme 4: Best Practices for Overcoming Challenges with Asexual Participants

The fourth theme **Best practices for overcoming challenges with asexual participants** aggregates participants’ recommendations regarding the design, procedures, and implementation of laboratory sex research with asexual individuals. Within the first sub-theme **Pre-study processes** we can identify recommendations related to informed consent and participant screening. A notable number of individuals mentioned “pre-briefing on general study whereabouts” as a thorough and detailed description of research goals, procedures, stimuli type, information about researchers conducting the study, participation benefits, and additional questions participants may have (*Make sure to emphasize the importance of these findings to make participants understand why they should participate, potentially provide examples early on of the stimuli so they know what they might be exposed to and can decide if they want to continue*, 28-year-old woman, asexual, aromantic, USA). It’s worth mentioning that many participants who were considering participation reported that they could be willing to take part after pre-briefing, suggesting that the more informed asexual individuals are about laboratory sex research, the more comfortable they will be engaging in it.

Many responses also expressed the need to “implement pre-screening strategies” to further inform the study by knowing asexual individuals’ self-identification labels, attitudes to sex, history of porn consumption, sexual preferences, and attraction types, and to determine those for whom the particular study methodology may not be suitable, for instance, sex-repulsed asexual individuals, individuals with a history of sexual violence and neurodivergent individuals (*Make sure you screen carefully – many aces are fine with this kind of subject, but many also have a history of trauma and will struggle to participate in this research*, 23-year-old woman, asexual, bi-romantic, USA).

The second sub-theme **Study design** encompasses recommendations aimed at enhancing the conceptualization of laboratory sexuality studies to make them more inclusive of asexual participants. The majority of responses emphasized that researchers should “implement an ethically sound, rigorous, and unbiased approach” by designing the study with ace-affirmative lenses in mind, following ethical guidelines, creating a comfortable and safe laboratory environment, and having a good understanding of research objectives, methods and limitations (*Do not use this study to “prove” or “disprove” the existence of asexuality. We do exist, regardless of what you’re going to measure*, 18-year-old genderqueer, asexual, aromantic, Germany). A significant number of participants also recommended to “engage ace voices in sex research,” meaning that

laboratory sex research would benefit from giving asexual individuals the ability to express themselves freely. They further stressed the importance of maintaining an active collaboration with the Ace community through participatory approaches (*You’ll never get a better understanding than by talking to us. You can understand how it affects the brain, but we’re the meaning behind it. Don’t underutilize those you’re testing*, 26-year-old non-binary, graysexual, demi-romantic, Canada).

Some ace individuals suggested researchers “develop a study design with alternative types of stimuli,” such as to use sexual stimuli of different modalities, to incorporate less explicit and more inclusive types of content, and a large variety of depicted sexual activities (*Maybe try out different kinds of media, audio, video, comics, written short stories, etc. Whether they have real people, animated (characters) that depict realistic people, or straight-up cartoon styles, or are completely abstract*, 20-year-old woman, asexual, aromantic, USA). An equal number of participants reported the need to “create a withdrawal and skipping protocol” that clearly states how asexual individuals can terminate the study and provides a possibility of skipping some types of sexual content (*It’s not my case, but you might want to include trigger warnings before presenting something more explicit with more sex-repulsed people. They might need to get a break or terminate the study before it’s over, if necessary*, 33-year-old woman, cupiosexual, aegosexual, demi-romantic, Canada).

The final sub-theme **Unique ace challenges** aggregates the recommendations that are specific for laboratory sex research with ace-spectrum participants. A notable number of participants highlighted their “concern with the well-being and inclusion of sex-repulsed/averse aces” (*Sounds not quite suiting for sex-repulsed asexuals*, 24-year-old woman, asexual, aromantic, Germany). Interestingly, participants’ positions on this matter were polarized, with some advocating for the inclusion of sex-repulsed/averse asexual individuals (*You might have to actively seek out sex-repulsed aces and aces all along the spectrum of repulsion and acceptance*, 19-year-old woman, asexual, aromantic, USA) and others arguing against it.

Many responses also stated that researchers need to “consider undirected sexual drive and non-sexual pleasure” to avoid confusing sexual attraction with sexual desire, arousal, aesthetic appreciation, or intellectual curiosity toward sexual materials (*I get why we’re looking at these pictures, but just because I may look at a sexual picture doesn’t mean I’m interested in sex. I could like the composition or the lighting, or I could just be wondering how someone gets into such a position*, 44-year-old woman, graysexual, bi-romantic, USA). Some participants referred to the “no gold standards for being ace,” emphasizing variability of asexual individuals’ bodily and affective reactions to sexual content, suggesting a lack of a unified standard for response patterns that could be classified as asexual within laboratory sex research (*Generally, I would advise the researcher not to assume asexuality is a monolith and that variances among asexual responses in such a study do not negate an identity as asexual*, 26-year-old woman, asexual, queer, aromantic, USA).

Only four of our participants had previously taken part in laboratory sex research. Overall, participants characterized their experience as positive, being satisfied with the researchers framing asexuality as a sexual orientation and a healthy

condition despite reporting a minor discomfort from observing sexually explicit content (*... even though it might be uncomfortable, I find it a safe and helpful way to advance the research about asexuality, making them visible at universities and in field studies. Connecting with my/their own emotions and bodily responses in a safe environment is a great way to reflect on oneself*, 24-year-old genderqueer, demisexual, homo-romantic, Germany). Among the suggested improvements, they highlighted implementing an ethically sound, rigorous, and unbiased approach toward asexuality and engaging ace voices to develop studies that hold relevance for asexual individuals, not just for researchers (*... I don't think many of us are interested in proving that we aren't disordered, so maybe that doesn't need to be the focus of all the research*, 35-year old woman, asexual, aromantic, Canada).

Of note, we also identified several concerns regarding the framing of transgender experiences in our study. Some participants argued that being transgender is not always a gender identity and that it would be better to conceptualize it as a gender modality. At the same time, other ace individuals were against separating transgender people from cisgender ones in questions related to gender identity and sexual/romantic attractions (*... stop saying that trans men and trans women belong in a different category than cisgender ones*, 30-year-old, transmasculine, demisexual, queer, Canada). Despite it being outside of the main scope of this study, we believe that such concerns raise an important issue that should not be ignored.

Relationship Between Codes, Sub-Themes, and Case Attributes

We further used NVivo to identify the meaningful relationships between codes, sub-themes, and participants' attributes (sexual orientation label, gender, history of sexual activity, race, and social class). This software tool enabled us to achieve a nuanced understanding of the data, which otherwise would have been impossible given the large sample size of our study. By adhering to this analytical process, we examined the intersections between different codes, sub-themes, and participants' characteristics and reported the ones that were the most meaningful for our research question. As gender and sexual orientation groups in our study had an unequal number of participants, we focused on the proportions of case attributes assigned to particular codes.

When participants were asked about their intention to participate in laboratory sex research, 41.7% expressed their desire to participate, 34.6% emphasized their unwillingness to participate, and 23.7% would consider participation. Furthermore, among the three ace-spectrum groups, graysexuals displayed the highest desire to participate in laboratory sex research (59.5%) and the most favorable attitudes toward sex (90.72%), followed by demisexuals (38.7% and 68.02%, correspondingly) and asexuals (37.95% and 22.46%, correspondingly). Graysexuals also were the only group that did not mention the development of withdrawal and skipping protocols as a way to improve laboratory studies of sexuality, highlighting their higher comfort with sexual information. Interestingly, graysexual participants also reported that they had "Limited resources to self-identification" twice as often as other participants. This may be linked to their marginal

position between asexuals and allosexuals, which makes graysexuality more challenging to identify.

As for gender identity, the absence of associations with laboratory sex research was much more common among cis-gender men compared to other gender identities (25.75% in cis men compared to 8.59% in cis women and 6.1% in non-binary individuals). It is also worth mentioning that sexually inexperienced participants reported a more pronounced "observer effect" (20.66%), more negative sexual attitudes (74.98%) and less desire to participate (35.95%) compared to individuals with a history of sexual or romantic relationships (11.18%, 55.14% and 50.3%, correspondingly).

In contrast to earlier studies (Wendler et al., 2005), asexual individuals of color expressed slightly more desire to participate in laboratory sex research (50.5%) compared to White ace individuals (38.9%), which could be promising, considering that individuals of color are only scarcely represented in the Ace Community Surveys and especially in scientific studies of asexuality. They also more frequently proposed incorporating alternative types of sexual stimuli in laboratory sex research (12.1% compared to 3.6% among White participants), which may tentatively point toward the cultural differences in the perception of sexual cues.

We also found some interesting relationships with participants' perceived social class. Lower-middle-class individuals most frequently associated laboratory sex research with medicalizing and pathologizing practices, middle-class individuals, with sexual behavior in laboratory settings, and upper-middle-class individuals, with experimental sexology practices. The absence of associations with laboratory sex research was also quite common among lower middle-class and middle-class asexual individuals.

Sub-theme relationships revealed that individuals who had more trust in laboratory sex research also gave more recommendations on improving the study design, being directly interested in collaboration with researchers.

Relationships between several codes and the desire to participate were somewhat ambivalent, with a portion of individuals who were unwilling to take part in laboratory sex research also claiming that asexuality is understudied or stigmatized. Among the most frequently mentioned reasons for not participating were discomfort/disinterest, untrustworthiness of study design, validity or impact, aversive attitudes toward sex, and not wanting to be observed. Additionally, some participants who expressed their eagerness to participate previously stated that laboratory sex research is incompatible with asexuality or aimed at pathologizing asexual individuals. Analysis of their responses revealed that such ambivalence can be attributed to participants' desire to enhance understanding of asexuality, interest/curiosity toward the study, and motivation for self-exploration.

Discussion

To the best of our knowledge, this study is the first to explore how asexual individuals perceive their role as participants in laboratory sex research, contributing to the existing scope of the literature on asexuality, research ethics, and volunteer bias

in laboratory sexuality studies. The findings demonstrate diverse patterns of asexual individuals' perceptions of laboratory sex research, which can be reduced to three main frames of trust, distrust, and ambivalence, connecting our findings to the broader discourse about scientific knowledge sharing and fostering efforts to enhance epistemic trust in science (Grasswick, 2010). Our results suggest that, similar to previous research with vulnerable populations (Yeater et al., 2012), benefits derived from asexual individuals' participation in laboratory sexuality studies can outweigh its emotional costs. This suggests that sex research meets minimal risk criteria and does not induce greater discomfort than what individuals typically encounter in their daily lives. Self-reports from asexual individuals with the experience of taking part in laboratory sex research further support this claim by highlighting the positive aspects of their participation. Moreover, this study has also identified a set of general recommendations with the purpose of improving laboratory sex research practices by making them more suitable for asexual individuals. We argue that future laboratory studies of sexuality with other sexual and gender minorities could potentially benefit from applying some of these recommendations to reduce participants' stress and anxiety, increase subjects' comfort levels, and account for variability in their sexual responses.

Perceptions of Science on Asexuality

Despite a significant growth in academic literature on asexuality (Hille, 2023), many participants continue to perceive it as understudied or disregarded by health professionals, as highlighted in the theme **Mapping the domain of asexuality**. One of the plausible explanations is linked to anti-asexual biases that are still prevalent in our society (MacInnis & Hodson, 2012; Vu et al., 2022). Indeed, common stereotypes about asexual individuals portray them as "emotionless robots, strange aliens, and unattractive monsters," describing asexuality as unnatural, abnormal, or fake (Brandley & Dehnert, 2024). According to MacInnis and Hodson (2012), a significant number of heterosexual individuals classify all future interactions with asexual individuals as unwanted, rating them the least favorably of all sexual orientations. Recent studies have connected anti-asexual attitudes to religious fundamentalism, singlism, traditional gender role endorsement, and political conservatism (Grigoropoulos, 2023; MacInnis & Hodson, 2012; Vu et al., 2022). However, participants may ascribe the existence of poor societal knowledge and anti-asexual biases to an insufficient scientific effort to study asexuality. Another probable explanation could be rooted in the complex intrinsic nature of asexuality as a relatively novel, heterogeneous, and "hard to reach" population, making it more challenging than other sexual orientations to capture and explain scientifically (DeLuzio Chasin, 2011). Therefore, by stating that asexuality is understudied, our participants could have highlighted existing blank spots in asexuality research or the irrelevance of the aspects explored by researchers to individuals on the ace spectrum. Finally, asexual individuals' belief that their sexual orientation is understudied could be related to inefficient results dissemination, with major scientific findings on asexuality being relatively unknown to a broader audience. This explanation is supported by the shared unrealistic representation of laboratory sex research

with solitary or dyadic sexual acts in laboratory settings that rarely happen in modern sex research (van Anders et al., 2009).

Overcoming Ace Distrust in Laboratory Sex Research

As captured in the themes **Something off with sex lab research** and **Putting trust in sex lab research?**, a large number of asexual individuals reported negative views toward laboratory studies, equating them to medicalizing and pathologizing activities or claiming to have no meaningful associations with the phrase. At the same time, participants expressed a high interest in acquiring knowledge about the etiology of their sexual orientation and features of ace sexual functioning. This inconsistency could be related to the previous medicalization of sexual minorities, contributing to the adverse characterization of science among asexual individuals. Indeed, until the late 70s in the U.S. and early 90s in the EU, any non-heterosexual behavior was treated as a medical issue (Almås, 2018; Giami, 2023). Currently, such behavior is still criminalized in several regions of the world (Korycki & Nasirzadeh, 2013; Rodriguez, 2017), and LGBTQ+ individuals continue to face significant human rights restrictions in numerous other countries (Page et al., 2023). As for asexuality, it took much longer to be recognized as a healthy condition distinct from sexual dysfunctions and mental disorders (Yule et al., 2017a). Though attempts to medicalize asexuality still exist, they are significantly less prevalent than before (G. Brown et al., 2023). The biopsychosocial approach to sexual health and high ethical standards for conducting laboratory sex research help researchers ensure a wholesome and unbiased perspective on sexuality, preventing psychological reductionism and pathologizing of sexual minorities (Nimbi et al., 2022). However, despite a ubiquitous commitment to socially informed experimental practices, cross-cultural variations exist, with politically conservative countries having lower tolerance for sexual diversity and higher rates of medicalization (Lowe et al., 2021).

Another key finding of our study concerns asexual individuals' willingness to participate in laboratory sex research. Surprisingly, despite considerable interest and desire among asexual individuals to engage in laboratory studies of sexuality, many still highlighted the untrustworthiness of their design, validity, and implications. Simultaneously, even participants who recognized the lack of research on asexuality sometimes demonstrated a noticeable reluctance or hesitation toward participation, as reflected in the sub-theme *Dangers of participation*. Compared to similar findings with allosexuals, almost half the number of asexual individuals are willing to volunteer for an eye-tracking study (S. J. Dawson et al., 2019). These discrepancies could be explained through the minority stress theory (Frost & Meyer, 2023; Meyer, 2003). Due to their sexual minority status, ace individuals are subjected to a high rate of stigmatization and prejudice, which produces an excessive amount of social stress, a trend especially pronounced among transgender and gender non-conforming individuals, who comprise up to 25% of the Ace community (Boot-Haury, 2023; Hermann et al., 2022). Proximal stressors such as internalized acephobia and expectations of societal rejection reinforce vigilance and criticism toward the laboratory studies of sexuality, making asexual individuals less eager to engage with research

(Chan & Leung, 2023; Frost & Meyer, 2023). These exact mechanisms could underpin asexual individuals' self-conscious behavior during participation in laboratory sex research by trying to control the narrative and prevent misinterpretation of the results. As such, minority stress may explain why a significant proportion of asexual individuals are unwilling to participate in laboratory-based sexuality studies. Indeed, once scientific trust has been breached, it exhibits "stickiness," which makes it quite challenging to reestablish (Furman, 2020). Taking into account that trust is a multifaceted construct involving epistemic, value-based, and affective elements (Grasswick, 2010), it should be noted that it may be disrupted on multiple layers. Some members of marginalized groups can question the authority of scientific knowledge over community-based knowledge, which is considered more profound and reliable (Allard & Ferris, 2015). Additionally, research that endorses the positivistic paradigm places primary value on the capacity of scientific knowledge to discover the objective truth, in contrast to the common laypeople's belief of knowledge as a tool serving social or communal benefits (Harding, 1991). Therefore, even those who have more trust in the research are forced to stay cautious to protect themselves from the implicitly anticipated risks perceived as dangerous not only for one individual but for the entire Ace Community. Having all this in mind, we can conclude that asexual individuals may have reasonable grounds to be suspicious of scientific results. As such, it is critical for sexual science to gain and reestablish its epistemic merit (Grasswick, 2010). To further advance the existing trust in laboratory sex research, asexual individuals express their need for honest and reliable procedures rooted in ethical principles.

Psychology has a history of using deception in research, with many classical experiments involving deceptive techniques and concealing their true goals until debriefing (Oczak & Niedźwieńska, 2007). Although deception is very rarely used in modern sexology, asexual individuals may be more prone to associate it with sex research, as evident from the theme **Best practices for overcoming challenges with asexual participants**. As such, the standard informed consent may not be sufficiently comprehensive to dismantle these false expectations toward laboratory studies with asexual individuals, increasing their comfort. Researchers must extensively elaborate on their research goals, disclose their positionality and research experience, give step-by-step guides on the study procedure, and provide exhaustive examples of the experimental stimuli to make their study more inclusive for ace spectrum individuals. For these reasons, we encourage researchers to expand the generalizability of their findings and reduce volunteer bias in laboratory sex research by including pre-briefing practices aimed at informing asexual participants and reassuring them that their data will be handled appropriately.

Exploring the Feasibility of Ace Recommendations for Laboratory Sex Researchers

Pre-briefing stands as a prime example of a recommendation from asexual individuals that has already found its place within contemporary guidelines for conducting laboratory sex research (Katz et al., 2023). Conversely, several other best practices appear to be less common, prompting a necessary discussion

regarding the feasibility of their implementation. As the study objectives and research paradigm always guide an experimental design, researchers' decisions about the focus of the study inherently limit the choice of best practices that could be included. Indeed, the recommendation to use auditory sexual stimuli or written erotica might be suitable for studies aimed at examining asexual individuals' responses to different types of stimuli (Goldey & van Anders, 2012), but it will not align with the context of eye-tracking studies, which, by definition, demand visual stimulation. The inclusion of self-chosen erotica can be helpful in studies that aim to evoke the highest sexual arousal or to increase identification with the sexual content (Goldey & van Anders, 2016; Katz et al., 2023), whereas researcher-chosen sexual materials might better serve different research goals. Tailoring content to recruit a more representative sample of asexual individuals could involve employing less explicit sexual stimuli, such as romantic pictures or nudes, and allowing participants to skip specific experimental segments. However, this approach might not be pertinent when the primary objective is to measure their reactions to highly explicit sexual stimuli. Finally, depictions of diverse body types and sexual practices hold relevance in laboratory sex research focused on partner attractiveness or understanding asexual responses to various sexual activities (Katz et al., 2023). Yet, they will be ineffective in the studies focused on assessing participants' responses to conventional sexual stimuli.

Suggested best practices regarding the inclusion of different asexual subgroups into laboratory sex research are also of great interest and importance. Considering that experimental studies are primarily dependent on sample size and consistency, laboratory sex research centered on ace minority identities (i.e., micro labels) currently seems unfeasible (DeLuzio Chasin, 2011). Additionally, as most experimental paradigms in sexuality research were designed for neurotypical individuals, in some cases, they may not account for the experiences of neurodivergent individuals, who compose a significant portion of the asexual community (Attanasio et al., 2022). Moreover, such studies require researchers to have extensive knowledge of both laboratory metrics and neurodivergence, which adds another layer of complexity to the implementation of this specific recommendation.

There is some uncertainty regarding the inclusion of sex-repulsed and sex-averse asexual individuals into laboratory sex research, with conflicting views among participants – some advocating for their inclusion and others disagreeing with it. Nevertheless, we should acknowledge that these groups are the least likely to participate in laboratory studies of sexuality, especially if such studies have highly explicit stimuli sets. To improve the experience of sex-averse asexual individuals who will be eager to overcome the discomfort of taking part in laboratory sex research, extensive pre-briefing and debriefing practices should be applied.

Best Practices for Conducting Ethically Sound Laboratory Sex Research with Asexual Individuals

One of the most significant contributions of this study is a set of participant-driven recommendations aimed at improving laboratory sex research with asexual individuals. These

recommendations encompass a spectrum, with some exhibiting broader applicability while others being more specific. For this reason, we advocate for all laboratory studies that include an experimental or comparison group primarily consisting of ace individuals to consider the following recommendations:

- (1) Include exhaustive pre-briefing on study objectives, participation benefits, and the researcher's background and positionality. Provide examples of experimental stimuli in advance and answer any questions that may arise.
- (2) Screen beyond inclusion/exclusion criteria, such as looking for the specific ace characteristics that may influence the results (attitudes toward sex, history of sexual assault, neurodivergence, micro labels, etc.). Identify vulnerable groups that may require additional support or will not be willing to participate.
- (3) Implement an ethically sound, ace-affirmative, and unbiased approach and ensure participants that their identity is respected. Constantly engage in dynamic re-evaluation and reflection on experimental choices and practices in a particular research context. Design rigorous and reliable studies while considering their limitations and implications for the Asexual community.
- (4) Educate yourself on the main concepts connected to asexuality, such as undirected sexual drive and non-sexual types of attraction, and use them to interpret your findings. You can look at the AVEN website (<https://www.asexuality.org>), Asexuality Archive (<https://www.asexualityarchive.com>), and Ace community reports to get started. There is also a plethora of ace-related channels and content on YouTube. If you want to get in touch with the Ace community, you can explore numerous groups on social media, particularly on Facebook, Reddit and Instagram. For even more ace resources, see <https://sites.google.com/asexualitysf.org/main/resources/general-ace-resources>.
- (5) Maintain an active dialog with the Ace community during all research stages, from study design to dissemination. In line with community-based participatory research (CBPR), we encourage scholars to view the Ace community as a genuine partner in research rather than merely the object of the study (Viswanathan et al., 2004). As CBPR is an orientation to inquiry rather than a distinct methodology, it is compatible with both qualitative and quantitative methods and stands as a general requirement among asexual individuals toward any kind of scientific research targeting the Ace community. By incorporating the participant-led approaches into laboratory studies with asexual individuals, we can repair their trust in these studies and further enhance the methodology of laboratory sex research with asexual participants. Moreover, we advise authors to also include free response options in their work and sections where asexual individuals can describe their experiences in their own words.

Whenever possible, researchers should also embrace additional steps:

- (1) Design the study in a sex-repulsed and sex-averse-friendly manner by incorporating less explicit sexual

content, trigger warnings, and the ability to skip certain parts of the experiment.

- (2) Provide participants with the capacity to self-select sexual stimuli.
- (3) Include sexual stimuli of different modalities, content depicting various conventional and non-conventional (e.g., BDSM) sexual behaviors, and different body types.

With these recommendations in mind, we can increase the comfort and inclusion of asexual individuals in laboratory sex research and inform our data analysis and interpretation.

Limitations and Future Directions

It is important to highlight several limitations of the current study, as doing so might provide initial directions for future research endeavors. Despite the effort to recruit asexual individuals with various cultural backgrounds, our sample was primarily based in the U.S., Canada, and Europe, with almost 75% of participants being White or of European descent. This limited our ability to identify cultural differences in ace individuals' perceptions of participation in laboratory sex research and the applicability of our findings to laboratory studies with non-Western individuals. Future research could fill this gap by explicitly targeting participants from non-Western countries.

Another limitation concerns the gender distribution, with women and non-binary individuals composing a significant part of the sample while male voices remained underrepresented, in line with the persistent trend observed in asexuality literature (de Oliveira et al., 2021; Hermann et al., 2022). Future studies may directly focus on the experience of asexual men to further inform findings.

In addition, even though this study included asexual individuals who utilized minority self-identification labels (e.g., aegosexual), their number was too small to make any conclusions regarding the perceptions of these specific ace groups. Future research should focus on the experience of asexual minority groups to enhance our understanding of their position toward participation in laboratory sex research.

Furthermore, the descriptions of methods used to conduct laboratory sex research might have also influenced our findings. Specifically, in the vignette for asexual individuals who had not yet taken part in laboratory studies of sexuality, we only mentioned eye-tracking and face-reading techniques. Introducing more invasive assessment tools, such as photoplethysmography, might have elicited a more negative response pattern. Given the well-documented volunteer bias in participation in sexual psychophysiology studies (S. J. Dawson et al., 2019; Strassberg & Lowe, 1995), we chose to focus on exploring asexual individuals' perceptions of other types of laboratory sex research. Future studies should investigate asexual individuals' positions toward various laboratory methods for studying sexuality.

It is also worth mentioning that we provided multiple choice options only to the question about participants' sexual orientation, which might have prevented asexual individuals from identifying with multiple genders or romantic orientations or choosing more than one occupational status (e.g., both a student and employed part-time). Even though our survey had many write-in response options where participants could have indicated their belonging to several categories, we acknowledge that not everyone might have done so. Moreover, due to the technical issues with the survey, some participants reported their inability to choose multiple options to indicate their sexual orientations. Therefore, we encourage future studies to allow the selection of several response options in sociodemographic questions whenever possible.

Conclusions

This study sheds light on asexual individuals' perceptions of participation in laboratory sex research. The results show diverse patterns of their appraisal of laboratory sex research centered around trust, distrust and ambivalence toward research. The majority of participants demonstrated their desire to take part in laboratory studies of sexuality or agreed to consider participating. A smaller proportion expressed their unwillingness to take part in laboratory sex research, mentioning their aversive attitudes toward sex, discomfort with study stimuli, procedures or anticipated implications, and high sexual stimuli intensity among the factors inhibiting their participation. Interestingly, ambivalent patterns in participants' responses were also identified, with some asexual individuals referring to asexuality as understudied and yet refusing to participate in laboratory sex research. This ambivalence is grounded in ambivalent perceptual frames of laboratory sex research and ambivalent perspectives throughout the dataset. Based on the asexual community responses, a number of best practices for conducting laboratory sex research with asexual participants were developed.

Overall, our findings underline the significance of addressing ethical considerations and fostering an inclusive research environment. The participant-driven recommendations provide practical insights for researchers seeking to enhance the experiences of asexual individuals in laboratory sex research. In this regard the current study contributes to the ongoing dialogue surrounding asexuality, with a particular focus on the challenges and opportunities inherent in empirical sex research within this unique population. Moving forward, researchers must prioritize ethical conduct and sensitivity to the concerns of asexual individuals to ensure the meaningful and respectful inclusion of this community in scientific inquiry.

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Data Availability Statement

To preserve confidentiality of our participants we have not made the dataset publicly available. However, it can be requested from the corresponding author with justification.

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