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Measurement and Correlates of Zoophilic Interest in an Online Community Sample

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Abstract
Sexual interest in animals (zoophilia) is a scant investigated topic owing partially to difficulties in assessing the behavior outside of a clinical setting. While there have been previous attempts to categorize individuals with a sexual interest in animals into classification systems, this requires extensive clinical interviews and psychometric testing. Previous classifications also lack clarity on the adjacent concept of furryism (i.e., interest in anthropomorphized animals) and how it may be related to zoophilia. As there are currently no validated psychometric measures of zoophilia, individuals with a sexual interest in animals are a challenging population to research and may be underdetected in clinical settings. The central aim of the present study was to examine the measurement and correlates of sexual attraction to nonhuman animals through the development and refinement of psychometric and visual stimulus measures of animal sexual interest. Participants included 1,228 respondents (72% zoophilic and 35% furries; 67% men and 22.9% women) recruited from the online community. The results indicated that a Sexual Interest in Animals-Self-Report (SIA-SR) scale had four distinct subscales with excellent discrimination for self-reported zoophilia. Moreover, endorsement of sexual interest in horses and dogs from visual stimuli was most common among the individuals in the sample, while dog and horse sexual and romantic attractiveness ratings also had the largest and most consistent associations with SIA-SR scores and self-reported zoophilia. The results contribute to a greater understanding of the sexual interest patterns for persons with zoophilia and have implications for theory, future research, and clinical practice.

Keywords Zoophilia · Bestiality · Psychometrics · Furryism · Paraphilia · DSM-5

Introduction

Although chronically under-researched (Beetz, 2004), human sexual interest in nonhuman animals is not a new phenomenon. Cave paintings depicting acts of human–animal sexual activity have been discovered indicating that it has existed, or at least was depicted, as early as the Iron and Bronze Ages (Dekkers, 1994; Gregersen, 1983; Taylor, 1996). Sexual interest in animals was also evident in Roman society as there are accounts that brothels existed for the sole purpose of offering animal sexual services (Schmidt, 1969). Animals had even been trained to have sex with women for the Olympic Games (Dekkers, 1994; see Beetz, 2004, for a full historical review). From these historical accounts, it is evident that the acceptability of human sexual contact with animals varies across time periods and cultures. Sexual interest in and contact with animals has been referred to a variety of terms (e.g., bestiality, opportunistic zoophilia, necrozoophile/necrozoobestialist; zoophilia/classic zoophilia, zoophilia by proxy, zooerasty, zoosadism) each with their own definition, making the issue difficult to classify and systematically study (Stern & Smith-Blackmore, 2016). A review of terminology by Beetz (2008) makes a point of differentiating the term *zoophilia*—an enduring sexual attraction to animals with both physical and emotional elements—from *bestiality*—which refers to physical human–animal sexual contact.

There is no consensus on the legal response to sexual contact with animals. Recently, Denmark was the site of legal and political debate over whether sexual activity with animals should be criminalized with some arguing that the rationale for banning the practices was not very persuasive (Christiansen et al., 2009). Currently, bestiality is now illegal in 44 states (ALDF, 2017) and is also illegal under US Armed Forces Code (10 U.S. Code, 2016; See Holoyda, 2022, for a full review of US legal responses). The Canadian Criminal

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Code (CCC) Sec. 160(1) identifies bestiality as an indictable offense with a maximum prison term of up to 10 years (Criminal Code, 1985; Gacek & Jochelson, 2017). The CCC did not provide a definition of bestiality and, in fact, in R. v. D.L.W. (2015), the Supreme Court of Canada concluded that Canada's bestiality laws did not strictly prohibit sexual acts of a non-penetrative nature with animals. To address this definitional inconsistency, Bill C-84 was passed to provide an explicit legal definition of bestiality (Harris, 2019). Intended to afford more comprehensive protections from animal abuse, the expanded legislation identifies all sexual contact between a human and an animal, penetrative or not, as an act of bestiality with the same sentencing provisions as Sec. 160 CCC (Department of Justice, 2018).

Prevalence of Zoophilia and Bestiality

As there has been a lack of systematic and scientific study of sexual interest in and contact with animals, there are very few studies that investigated the prevalence of these behaviors (Beetz, 2004). Hunt (1974) reported that, in a sample of 982 men and 1,044 women in 24 US cities, 4.9% of men and 1.9% of women had engaged in sexual contact with animals which is slightly lower than the 8% reported by Kinsey et al. (1948). More recently, a large-scale study of paraphilic interest in the Czech population (5,023 men and 5,021 women) found that 7.1% of men and 4.0% of women surveyed had zoophilic paraphilic interest. Furthermore, 1.0% of men and 0.3% of women could be classified as having a zoophilic paraphilia based of their self-reported interests and behaviors (Bártová et al., 2021). In a sample of 1,516 adults individuals from Quebec, Canada, 3% of men and 2.2% of women reported fantasizing about having sexual contact with an animal which showed it to be a statistically rare fantasy in the sample (Joyal et al., 2015). It is important to note that, while those in Joyal et al. were reporting fantasies, this may not represent actual behaviors. Of the men from Hunt (1974) who reported engaging in sexual contact with animals, approximately 80% of them did so prior to the age of 15 and almost half of these individuals reported that their sexual contact was with dogs. In a sample of 180 prison inmates, Hensley et al. (2006) reported that 6% of inmates in maximum and medium security prisons reported a history of childhood bestiality and, more recently, Henderson et al. (2011) reported 20% of inmates had a history of sexual contact with animals. In terms of individuals reporting a sexual interest in animals, Miletski (2017) found that 83% of men with zoophilic interest (also referred to as "zoos"; $n = 82$) reported sexual activity with an animal at an average rate of 2.96 times per week; 64% of men masturbated the animal, 42% fellated the animal, and 34% were anally penetrated by the animal. For women ($n = 11$), 64% reported that they masturbated the animal, 55% received oral sex, and 45% were penetrated vaginally

(Miletski, 2017). In a sample of men who reported frequenting sadomasochism clubs in Finland, Sandnabba et al. (2002) found that 7.4% of participants reported at least one sexual experience with an animal. The term zoosadism has been used to connote persons who receive sexual excitement from inflicting pain and suffering on animals up to and including violent death in pursuit of sexual gratification. To this end, Beetz (2002) reported that 5.3% of men practicing bestiality reported harming an animal and almost twice as many (9.7%) used force in some capacity during sexual relations. This association between sadism and zoophilia is not unexpected as sexology research has found that paraphilias tend to be intercorrelated, as do specific fetishes (Seto et al., 2014). In all, prevalence rates of bestiality are generally low in the population at large with slightly higher base rates reported in atypical samples.

Classification Typologies for Sexual Interest in Animals

Although there is a relative abundance of case studies examining individuals with sexual interest in animals (e.g., Bhatia et al., 2005; Earls & Lalumiere, 2009; Wilcox et al., 2015) with many focusing on individuals in forensic settings (Holoyda, 2017), there has been a lack of systematic review of the characteristics of individuals with a sexual interest in animals. Currently, sexual interest in animals is classified as a "Paraphilia Not Otherwise Specified" in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013). Moreover, the World Health Organization's (WHO) *International Classification of Diseases* (ICD-10; World Health Organization, 2016) only mentions sexual activity with animals in passing when discussing patterns of sexual preference in the context of other paraphilias. This means that sexual interest in animals is not specifically diagnosed in either of the principal mental health diagnostic manuals, in part because an exhaustive list of all possible paraphilias is not practicable (e.g., as would be the case for a list of all possible specific phobias). Rather, a paraphilia in general needs to be diagnosed, and then the object or source of paraphilic arousal identified. Currently, a primary means of assessing sexual interest in animals is through clinical interview (Bhatia et al., 2005) or penile plethysmography (Earls & Lalumiere, 2002); there are no specific psychometric measures known to the authors.

There have been two noteworthy attempts at creating a classification system differentiating persons with preferential zoophilia from those engaging in acts of bestiality. First, Earls and Lalumiere (2009) outlined the following criteria for preferential zoophilia and concordant bestiality, which they estimated should be a statistically rare phenomenon:

"(1) the individual reports intense and recurrent sexual fantasies and urges about having sexual interactions with nonhuman animals, or reports repeated sexual interactions with nonhuman animals accompanied by strong sexual arousal; (2) the individual chooses sexual interactions with nonhuman animals even when willing human partners are available; (3) using objective measures, the individual shows greater sexual arousal to images of members of a nonhuman species than to images of humans, or shows greater sexual arousal to descriptions of sexual interactions with members of a nonhuman species than to descriptions of sexual interactions with humans" (Earls & Lalumiere, 2009, p. 84).

Second, Aggrawal (2011) subsequently developed a nuanced and comprehensive classification system for zoophilic individuals informed by a classification system for necrophilia (Aggrawal, 2009), arranged along a 10-point class continuum of behavioral extremeness: Class I, "human-animal role-players" engage in animal role plays with humans in their sexual activity (e.g., pet play, pony play) but prefer human partners and have no animal sexual contact; Class II, "romantic zoophiles," keep animals as pets for psychosexual stimulation but do not have animal sexual contact; Class III, "zoophilic fantasizers" have masturbatory sexual fantasies about animals and/or masturbate while animals are present; Class IV, "tactile zoophiles" engage in physical contact through stroking and fondling the genital, perianal, and anal region of an animal; Class V, "fetishistic zoophilia", preserve parts of animals (e.g., furs) to be used as fetishistic objects for their zoophilic activities; Class VI, "sadistic bestials," generate sexual excitement from physical injury and pain to animals; Class VII, "opportunistic zoosexuals," prefer human partners but engage in sexual activity with animals opportunistically; Class VIII, "regular zoosexuals" do not enjoy sexual activity with humans and have a sexual preference for an emotionally close connection to nonhuman animals that they describe as love; Class IX, "homicidal bestials," kill animals expressly for the purpose of necrozoophilia (i.e., sexual intercourse with animal corpses); and Class X, "exclusive zoosexuals" have sexual activity primarily or exclusively with animals and prefer animals to humans, consistent with Earls and Lalumiere's (2009) criteria for exclusive zoophilia.

Aggrawal (2009) notes that a detailed history is essential to classify an individual into a particular class of zoophilic interest, which may pose challenges as individuals may not feel comfortable disclosing stigmatized information to a clinician. Further compounding the issue, many clinicians are uncomfortable asking about sexuality in general (Miller & Byers, 2012) and may be exceptionally uncomfortable openly discussing sexually taboo topics such as sexual interest in, and activity with, animals. As such, these behaviors and any

associated stress or issues associated with them may be going undetected and untreated.

Finally, although not explicitly mentioned in the classification system, the adjacent concept of Furryism— individuals attracted to anthropomorphized animals and/or the idea of being an anthropomorphized animal rather than being sexually attracted to animals themselves (Hsu & Bailey, 2019)— may fit under class I in Aggrawal's (2009) system.[1] While many of the behaviors and interests espoused by those in the Furry community seem quite similar to the behaviors seen in class I (e.g., behaving like animals or encouraging sexual partners to behave like animals), it could be argued that attraction to nonhuman animals and anthropomorphized humans are conceptually distinct. Further, a subgenre of erotic furry artwork, "feral" art, where at least one participant appears to be a real animal with superficial changes/additions (or none at all) and anatomically correct genitals, is fairly popular and blurs this distinction, if one exists. Being able to differentiate the two and understanding the difference between how the general population views animals versus those with a zoophilic interest is of considerable importance.

Rationale for the Current Study

As there are very few resources available to assess human sexual interest in nonhuman animals in individuals beyond a clinical interview or phallometry, it is challenging to conduct research with individuals with a sexual interest in animals outside of a forensic setting. While zoophilia may be a statistically infrequent pattern of sexual interests and behaviors— although it is difficult to ascertain true base rates owing to a lack of validated measures of the zoophilia construct to drive research—the development and refinement of measures of zoophilic interest can help inform theory, research, clinical practice, and understanding. The central aim of the present study was to examine the measurement and correlates of sexual attraction to nonhuman animals through the development and refinement of psychometric and visual stimulus measures of animal sexual interest. The study also sought to distinguish sexual attraction to animals from sexual attraction to anthropomorphized animals (i.e., furries) and nonsexual attraction to animals (e.g., finding an animal "cute"). Three research questions were proposed:

1. What is the latent structure of a measure of zoophilic interest, and can a self-report psychometric measure of this nature be developed and refined?

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[1] While this paper discusses furryism broadly, the measure is designed to capture a specific facet of furry identity: Furry Sex. Following criticism from Brooks et al. (2022), the measure was renamed from "Furryism" which was used in Zidenberg (2021) to "Furry Sex" for this paper.

2. How well do psychometric indicators of sexual interest in animals and visual ratings of animal attractiveness discriminate persons with zoophilic interests from those individuals without zoophilic interests?

3. What is the amount of conceptual overlap between zoophilia and categories of paraphilic behaviors, including furry sex; that is, how is zoophilia conceptually distinct, and its measurement, psychometrically distinct?

Method

Participants

Participants were recruited from social media (i.e., Twitter and Facebook) and students were recruited in exchange for course credit. Additionally, in order to reach the target population for this study, postings were made on forums utilized by individuals with an interest in animals (e.g., specific subreddits and Zooville.org). Initially, 2,028 individuals responded to the survey, but 800 were removed due to missing data and as a result of data cleaning—leaving a final sample of 1,228 respondents. In the light of these recruitment strategies, 72% and 35% of the total sample identified as zoophiles and furries, respectively. Individuals self-identified using a yes or no as members of the furry community and/or as someone with a sexual interest in animals. The mean age of participants was 25.05 (SD = 9.75) years and participants were mostly men (67%), non-heterosexual (bisexual: 28.3%; homosexual: 10.7%; pansexual: 10.1%; other orientation: 10.3%; asexual: 1.6%), Caucasian (77.5%), completed at least some university (47.4%), lived in an urban center (72.4%) and were liberal (48.5%). Two-third (66.7%) of the sample reported owning a pet and 10% having employment that brought them in contact with animals.

Procedure

This study was reviewed and approved by the University Behavioural Research Ethics Board (Beh-REB #1669). Participants were recruited using posts on social media and through targeted posts on forums that are popular with our target demographic. The study was advertised as measuring "interest in animals." There were two versions of the survey available for participants: one that was made for the general public who may or may not have an interest in animals and one developed for an online community of persons identifying as having zoophilic interest. For the latter, consultation with and feedback from Zooville.org forum moderators was used to develop a survey and stimulus materials better suited to the online zoophilia community. Wording was changed for a few key questions and one scale was removed (and not analyzed for either group) as the zoophilic

community pointed out difficulties in answering them based on the original wording used. Only questions that overlapped between the two versions were analyzed in this manuscript. All participants were given definitions of terms used in the survey (e.g., anthropomorphized, romantic attraction). The survey included attention checks that automatically removed participants who failed them (i.e., participants were shown 3 questions that asked them to select a specific response throughout the survey), and other checks were completed as part of routine data cleaning (i.e., checking for outliers, confirming all participants conformed to inclusion/exclusion criteria, determining cases where the majority of the survey was left blank). Participants were offered a $5 CAD gift card in exchange for their participation. All participants completed the survey in an online platform. Following their provision of consent to participate, participants completed the study measures below and then were thanked for their participation.

Measures

Animal Visual Stimuli

Participants reviewed images of animals (87 total) and were asked to rate each picture on one of three dimensions of in terms of: (1) level of "cuteness," (2) sexual attractiveness (i.e., a desire to have sexual contact), and (3) romantic attractiveness (i.e., a deep desire to have a committed, romantic relationship, not necessarily with a sexual component); each were rated on a 7-point scale anchored at 1 (not at all) and 7 (very). Images were all marked for commercial reuse on Google Images and included dogs (13), horses (11), cats and exotics (11) fowls and small animals (9), sheep and goats (8), pigs (5), cows (4), moose and deer (4), camelids (3), and dolphins (2). The types and number of animals selected were based on reported targets of interest in previous literature (Hvozdík et al., 2006; Imbschweiler et al., 2009; Miletski, 2002) and feedback from the forum moderators at Zooville. org.

Sexual Interest in Animals-Self-Report

The Sexual Interest in Animals-Self-Report (SIA-SR) is a psychometric paper and pencil measure of sexual interest in nonhuman animals. Participants were asked to provide information to a series of questions about their interest in animals on a 7-point scale anchored at disagree and strongly agree. Questions were developed based on the typologies developed by Aggrawal (2011) and Earls and Lalumiere (2009) and refined based on feedback from forensic psychology students and faculty researchers and the Zooville.org moderators. The original questionnaire included 39 items and included items such as "I like to act like an animal during sexual intercourse or foreplay with humans," "I masturbate while watching

animals copulate," "I wouldn't turn down the opportunity to have sex with an animal," and "I get sexually excited by media (e.g., drawings, videos, gifs) of anthropomorphized animals."

Multiple Paraphilic Interests Scale

Participants were also asked to complete the Multiple Paraphilic Interests Scale (MPIS; Smallbone & Wortley, 2004) to provide information about any potentially paraphilic interests. The MPIS asks participants to provide information about their behaviors over the past six months using the category "never," "once or twice," and "three or more times." For the purposes of this study, the option of "ever" was added to the options in order to capture any instances of the behaviors that occurred outside of the 6-month window.

Data Analyses

Data analyses focused on the refinement of the SIA-SR item content and factor structure and examining the discriminating properties of this measure and animal visual stimuli for persons who self-identified as having zoophilic interests vs. those who did not. Most analyses were conducted with SPSS version 25.0 with the exception of the exploratory factor analysis (EFA), which was conducted using Mplus 7.4 (Muthén & Muthén, 2015). First, a principal components analysis (PCA) followed by EFA was conducted on SIA-SR item scores. PCA with Varimax rotation was conducted to approximate the factor structure and identify candidate items for inclusion prior to conducting an EFA (Tabachnick & Fidell, 2007). The EFA was conducted in Mplus using the default (for continuous variables) maximum likelihood model estimation to extract the factors and Geomin oblique rotation. Cases were retained if they were missing no more than 25% of the SIA-SR items (< 5% of the data [4.8%] were missing for 1,223 cases). In addition to scrutinize the magnitude and pattern of loadings, we conducted parallel analysis to guard against overextraction and reported the following indices generated from the EFA to evaluate factor model fit to the data: comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR). Marsh et al. (2010) note that CFI values of 0.90 and 0.95 constitute "acceptable" and "excellent" fits, respectively, while RMSEA values below 0.05 and 0.08 constitute "close" and "reasonable" fits, respectively. Further, Asparouhov and Muthén (2018, p. 3) note that SRMR values below 0.08 constitute "an approximately well fitting model…that does not include any large residual values." Marsh et al. (2004), however, caution about overgeneralizing such heuristics as they can be questioned in terms of their substantive and practical significance. Thus, we utilize

these values as a guide, with the final solution being a compromise between fit, parsimony, and interpretability.

Second, a series of correlation analyses were conducted to examine associations between self-reported sexual interest in animals, via the SIA-SR, and stimuli ratings (i.e., sexual attractiveness, romantic attractiveness, and cuteness) of the different animal categories (i.e., dogs, cats, fowl, cows, horses, pigs, and sheep). Correlation magnitudes between continuous variables were interpreted per the conventions of Cohen (1992) in which values of 0.10, 0.30, and 0.50 correspond to small, medium, and large effects, respectively. Owing to missing data, item averages were computed to generate composite scores for the SIA-SR total and factor scores, as well as the animal stimulus ratings. Third, frequencies of paraphilic behaviors from the MPIS scale were examined, as well as self-reported furryism (not on the MPIS but relevant to zoophilia), and their associations with self-reported zoophilic interest, via chi square test and odds ratios (ORs). ORs were selected given the low base rate of rare paraphilic behaviors (e.g., necrophilia) which can attenuate other measures of association that are base rate dependent. Based on the d_{cox} index from Sánchez-Meca et al. (2003) to convert d equivalents from ORs, OR values of 1.39, 2.28, and 3.74 were interpreted to characterize small, medium, and large effects, respectively.

Fourth, to assess the predictive accuracy, and hence discriminating properties, of the SIA-SR total item ratings and factor composites for self-reported zoophilia, receiver operating characteristic (ROC) area under the curve (AUC) statistics were computed. AUCs range from 0 to 1.0, and in this context, represent the probability that a randomly selected person with zoophilia has a higher score on a given animal interest measure than a randomly selected person without zoophilia. With values of 0.50 representing chance level discrimination, AUCs of 0.56, 0.64, and 0.71 represent small, medium, and large effects, respectively, and directly correspond to d values of 0.20, 0.50, and 0.80, respectively (Rice & Harris, 2005). We also compute d to report the difference between zoophilic and non-zoophilic persons in standard deviation units on the measures. Finally, we conducted a series of logistic regressions to examine the incremental predictive validity of self-reported animal sexual interest ratings (via the SIA-SR) and animal stimulus ratings for binary zoophilia. The results of the AUC/d analyses informed the selection and ordering of predictors. In short, the regressions aimed to examine the relative discriminating properties of visual stimulus ratings vs. psychometric self-report ratings in predicting self-reported zoophilia.

Results

Factor Analysis of Sexual Interest in Animals-Self-Report Item Scores

An EFA was conducted on the items from the SIA-SR to identify the latent constructs that underpin self-reported sexual interest in animals as measured by this tool, and hence, possible subscales. The initial PCA, coupled with scrutiny of item-total correlations, suggested four possible candidate factors with 37 eligible items loading; items that did not load above 0.32 (i.e., accounting for less than 10% of the variance loading on a variable, per Tabachnick & Fidell, 2007) and/or had weak item-total correlations (e.g., $r < .10$) were removed. EFA followed to refine and finalize the factor solution using Mplus with default maximum likelihood model estimation to extract the factors and Geomin oblique rotation. A four-factor model without cross-loadings provided the best balance between fit to the data and the interpretability and parsimony of the solution: CFI = 0.867, RMSEA = 0.093, 95%CI (0.091, 0.095), SRMR = 0.041. Although a five-factor model provided stronger fit (CFI > 0.90), the results of parallel analysis suggested that the fifth factor was no larger than one that would be generated at random (eigenvalues = 0.998 vs. 1.240, respectively), and so a four-factor model was retained to generate the SIA-SR subscales.

The four factors were labeled: *Zoophilia* (20 items, eigenvalue = 16.597, $\alpha = 0.88$), *Opportunism* (5 items, eigenvalue = 3.694, $\alpha = 0.77$), *Zoosadism* (5 items, eigenvalue = 2.767, $\alpha = 0.72$), and *Furry Sex* (7 items, eigenvalue = 2.140, $\alpha = 0.89$). Table 1 presents the factor loadings for each item of the scale. The zoophilia subscale contains items that indicate a general sexual interest in nonhuman animals and desire to have sexual contact with them. The opportunism subscale includes items that indicate a sexual preference for humans, but a willingness to have sexual contact with nonhuman animals if an opportunity is present. The zoosadism subscale captures sexual attitudes, urges, preferences, and behaviors toward the pain, suffering, and killing of nonhuman animals and/or sexual contact with dead animals. The furry sex subscale contains items related to sexual excitement with anthropomorphized animals and fursuits.

Bivariate Associations for Self-Reported Animal Sexual Interest and Attraction Ratings

Table 2 reports bivariate associations between SIA-SR subscale and overall ratings with animal stimulus attractiveness ratings by the three rating domains. Given the large sample size, most correlations with the exception of those that were trivial in magnitude ($r < .06$) were significant. Several themes were evident. First, dog and horse sexual and romantic attractiveness ratings had the largest and most consistent associations with SIA-SR item scores. Dog sexual and romantic attractiveness ratings had large correlations ($r = .52-.70$) with the zoophilia and zoosadism subscales and the overall item average, and medium correlations ($r = .38-.45$) with the opportunism and furry sex subscales. Moreover, horse sexual and romantic attractiveness ratings had large effects ($r = .51-.57$) for Zoophilia subscale and overall item average, and medium associations ($r = .33-.41$) with the opportunism and furry sex subscales. Second, for the other animal stimulus categories, the associations with self-reported sexual interest in animals tended to be smaller in magnitude. Any associations approaching medium in magnitude were for the cow, pig, and sheep ratings with the zoophilia and zoosadism subscales, as well as the overall item average. Cat and fowl attractiveness ratings in general had small to weak associations with self-reported animal sexual interest. Third, self-report ratings of animal "cuteness" were much more weakly associated with any of the dimensions of self-reported sexual interest in animals; that is, respondent ratings of an animal picture's "cuteness" had little relation to whether or not individuals would report also being sexually interested in animals along one of the scales' latent dimensions.[2]

Zoophilia and Other Self-Reported Paraphilic Behavior

Individuals in the sample reported engaging in a number of paraphilic behaviors in the last 6 months as reported in Table 3, the odds of which ranged from slightly higher (OR = 1.30) to substantially higher (OR = 5.45) among zoophilic persons. Zoophilic identification was significantly associated with self-reported involvement in all paraphilic behaviors with the exception of telephone scatalogia. The largest effects were for furryism and necrophilia, representing, respectively, the most frequent and least frequent categories within the zoophilia group, and both of which had a more than fivefold increase in the odds of being reported in the zoophilic group. A large effect was also shown for public masturbation, associated with a near four times increased odds among zoophilic persons. Small to moderate effects (OR = 1.66–2.84) representing a near two to three times increased odds for each of the remaining categories of paraphilic behavior with self-reported zoophilic identification, except for telephone scatalogia.

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[2] Ratings of sexual attractiveness, romantic attractiveness, and cuteness were all positively correlated across animal stimuli. Sexual attractiveness was strongly correlated with romantic attractiveness ($r = .77$, $p < .001$) and all others had medium correlations ($r = .42-.46$, $p < .001$) (see online supplemental materials Tables S1-S3).

Table 1 Sexual Interest in Animals-Self-Report factor loading matrix

Item	Zoophilia	Opportunism	Zoosadism	Furry sex
1. I am excited by the thought of having sexual contact with animals	**0.891***	− 0.226*	0.005	− 0.005
2. I like my human sexual partners to act like an animal, for instance, through pet play, pony play, ponyism, or pup-play	0.093*	− 0.056*	0.042*	**0.624***
3. I like to act like an animal during sexual intercourse or foreplay with humans	0.138*	− 0.029	0.031	**0.584***
4. I keep a pet for romantic companionship	**0.729***	0.482*	− 0.002	0.004
5. I allow the animal to show consent to sexual intercourse (R)	**− 0.737***	0.033	0.197*	− 0.016
6. I would not harm an animal during sexual intercourse (R)	− 0.348*	0.063	**0.433***	0.007
7. I feel romantic love for my pet, but I would never have sex with them	**0.823***	0.207*	− 0.024	0.031
8. I fantasize about sexual acts with animals	**0.878***	− 0.229*	0.006	− 0.002
9. I masturbate while thinking about animals	**0.862***	− 0.082*	0.033*	0.033*
10. I masturbate while animals are present to heighten sexual arousal	**0.667***	0.088*	0.176*	0.041
11. I masturbate while watching animals copulate	**0.682***	0.066*	0.038	0.154*
12. I masturbate while watching pornography featuring animal–human sexual contact	**0.770***	− 0.341*	0.031*	− 0.004
13. I watch pornography featuring animal–human sexual contact	**0.785***	− 0.338*	0.026*	− 0.009
14. I have dreams involving sexual acts with animals	**0.820***	− 0.012	0.045*	0.018
15. I fantasize about sexual acts with animals, but I would never have sex with an animal (R)	0.115*	**0.435***	0.155*	− 0.197*
16. I'm sexually excited by touching the genital and anal regions of animals	**0.871***	− 0.076*	0.055*	0.014
17. I rub my genitals on animals for sexual to heighten sexual excitement	**0.631***	0.101*	0.169*	0.056*
18. I get sexually excited by objects that remind me of animals (e.g., furs, animal teeth, reptile skin)	0.198*	0.037	0.083*	**0.410***
19. I get sexually excited by animals in pain	0.037	− 0.048*	**0.633***	0.026
20. I inflict pain on animals to receive sexual to heighten sexual excitement	0.013	− 0.049*	**0.754***	− 0.012
21. I would have sex with a human if they were available	**0.800***	− 0.302*	0.013	0.000
22. I prefer to have sex with humans (R)	− 0.099*	**0.738***	0.065*	− 0.128*
23. I wouldn't turn down the opportunity to have sex with an animal	**0.798***	− 0.229*	0.063*	− 0.028
24. I have no romantic interest in animals but I would still have sex with them (R)	− 0.119*	**0.729***	− 0.143*	0.032
25. I prefer to have sex with animals rather than humans	**0.917***	0.383*	0.076*	− 0.078*
26. I love animals romantically	**0.864***	0.501*	− 0.115*	0.028*
27. I get "crushes" on animals	**0.846***	0.372*	− 0.074*	0.044*
28. I prefer to have sex with dead animals	0.020	− 0.008	**0.535***	0.045
29. I get sexually excited from killing animals	− 0.042	− 0.011	**0.648***	0.089*
30. I am sexually attracted to humans (R)	− 0.003	**0.685***	0.096*	− 0.188*
31. I would have sex with a human if they were available (R)	− 0.018	**0.666***	0.029	− 0.235*
32. Animals can reciprocate my romantic feelings and attractions	**0.860***	0.215*	− 0.114*	0.037*
33. Animals can reciprocate my sexual feelings and attractions	**0.914***	− 0.044	− 0.072*	− 0.040*
34. I am interested in animals with human qualities or the idea of being an anthropomorphized animal	0.291*	− 0.080*	− 0.077*	**0.565***
35. I get sexually excited by media (e.g., drawings, videos, gifs) of anthropomorphized animals	0.404*	− 0.175*	− 0.056*	**0.472***
36. I get sexually excited from wearing a fursuit	− 0.018	0.126*	0.076*	**0.875***
37. I get sexually excited from sexualized contact with others wearing fursuits (yiffing)	− 0.016	0.035*	0.054*	**0.889***

*Significant at 5% level; (R) indicates a reverse-scored item. Items loading in bold font

Predictive Accuracy of Animal Sexual Interest and Attraction for Self-Reported Zoophilia

As shown in Table 4 the total score and all subscales of the SIA-SR had exceptionally high discrimination of persons reporting vs. not reporting zoophilic interest (AUCs ≥ 0.85, ds 1.29–3.18). A cut score of approximately 1 SD above the mean for non-zoophilic persons (i.e., total score > 110 or item average ≥ 3) correctly classified 93.1% of cases (1,120/1,203), $\chi^2(1, N=1,203)=823.23$, $\varphi=0.83$, $p<0.001$. Moreover, dog and horse sexual attractiveness ratings each had excellent discrimination for self-reported zoophilic identification (AUCs > 0.80, d > 1.0). Cow sexual attractiveness, sheep sexual attractiveness, dog romantic attractiveness, and

Table 2 Correlation matrix: bivariate associations between SIA-SR scores and animal stimulus composite ratings (average item values)

| Animal stimulus ratings | Sexual Interest in Animals-Self-Report | | | | |
	Zoophilia	Opportunism	Furry sex	Zoosadism	Total
Sexual attractiveness					
Dog composite	**.70**	*.38*	.45	**.55**	**.70**
Cat composite	.14	.05	.13	.20	.16
Fowl composite	.09	.00	.13	.15	.10
Cow composite	*.41*	.18	*.35*	*.33*	*.41*
Horse composite	**.67**	*.40*	.45	**.52**	**.68**
Pig composite	*.32*	.15	.23	.24	*.32*
Sheep composite	*.35*	.10	.29	*.30*	*.35*
Romantic attractiveness					
Dog composite	**.57**	.07	*.33*	*.44*	**.53**
Cat composite	.12	− .04	.06	.14	.11
Fowl composite	− .02	− .08	.03	.06	− .01
Cow composite	*.30*	.01	.22	.24	.28
Horse composite	**.54**	.12	*.35*	*.41*	**.51**
Pig composite	.23	.00	.16	.17	.21
Sheep composite	.23	− .04	.18	.20	.21
Cuteness					
Dog composite	.05	− .02	− .01	.11	.06
Cat composite	.02	.09	.01	.15	.06
Fowl composite	− .19	− .11	− .18	.00	− .16
Cow composite	.14	.09	.12	.18	.16
Horse composite	.25	.09	.17	.22	.25
Pig composite	.10	.08	.09	.13	.11
Sheep composite	.12	.06	.11	.17	.14

$p < .001$ for $r \geq .10$, $p < .01$ for $r = .08$-$.09$, $p < .05$ for $r = .06$-$.07$., *ns* for $r \leq .05$. $N = 1,222$ to $1,228$. Large correlations in bold font, medium correlations in italics, small or subthreshold effects in standard font

Table 3 Zoophilic identification and endorsement of other paraphilic interests or behaviors

| Paraphilic category | Overall % [n] | Zoophilic identification | | χ^2 | OR |
		Yes % [n]	No % [n]		
Furry	34.6 [418/1,207]	44.2 [381/862]	10.7 [37/345]	121.96***	5.45
Voyeurism	43.4 [519/1,195]	48.1 [411/854]	31.7 [108/341]	26.86***	2.00
Exhibitionism	21.3 [256/1,200]	25.5 [219/859]	10.9 [37/341]	31.19***	2.81
Public masturbation	28.4 [340/1,199]	34.8 [299/858]	12.0 [41/341]	62.58***	3.91
Frotteurism	5.5 [66/1,199]	6.4 [55/860]	3.2 [11/339]	4.60*	2.03
Fetishism	37.8 [454/1,198]	44.2 [380/859]	21.8 [74/339]	51.86***	2.84
Masochism	26.2 [315/1,202]	30.5 [263/861]	15.2 [52/341]	29.55***	2.44
Telephone scatalogia	12.5 [150/1,202]	13.3 [114/858]	10.6 [36/341]	1.66	1.30
Sadism	14.1 [169/1,200]	15.7 [135/861]	10.0 [34/339]	6.42*	1.66
Necrophilia	3.4 [41/1,204]	4.4 [38/862]	0.90 [3/342]	9.28**	5.21

*** $p < .001$; ** $p < .01$; *$p < .05$. OR = odds ratio

horse romantic attractiveness had moderate to large effects for self-reported zoophile identity (AUCs > 0.70, d > 0.70). All measures of cuteness and other measures of attractiveness had small or subthreshold effects in discriminating self-reported zoophilic persons from non-zoophilic persons identity (all AUCs < 0.59).

Table 4 Predictive accuracy (*d* and AUC) of SIA-SR scores and animal stimulus composite ratings (average item values) for self-reported zoophilia

Measure	Zoophilia		Control		*d*	AUC [95%CI]	
	M	*SD*	*M*	*SD*			
Sexual Interest in Animals-SR							
Total scale	4.45	0.68	1.72	1.19	3.18	.94***	[.93, .96]
Zoophilia subscale	5.43	0.99	1.79	1.38	3.03	.96**	[.94, .97]
Opportunism subscale	4.05	1.32	2.01	1.81	1.29	.80**	[.76, .84]
Furry Sex subscale	3.65	1.47	1.66	1.20	1.48	.87**	[.84, .89]
Zoosadism subscale	2.08	0.54	1.22	0.46	1.71	.85**	[.83, .88]
Animal stimulus ratings							
Sexual attractiveness							
Dog composite	3.20	1.03	1.51	1.00	1.66	.87***	[.85, .90]
Cat composite	1.43	0.94	1.25	0.75	0.20	.58***	[.54, .61]
Fowl composite	1.21	0.60	1.17	0.65	0.05	.53	[.50, .57]
Cow composite	2.39	1.65	1.32	0.69	0.85	.76***	[.71, .77]
Horse composite	4.42	1.90	1.77	1.54	1.66	.87***	[.84, .89]
Pig composite	1.80	1.25	1.18	0.67	0.62	.67***	[.64, .71]
Sheep composite	1.99	1.30	1.26	0.83	0.70	.70***	[.67, .73]
Romantic attractiveness							
Dog composite	2.88	1.34	1.57	1.07	1.09	.79***	[.76, .82]
Cat composite	1.63	1.20	1.45	1.03	0.16	.54*	[.51, .58]
Fowl composite	1.19	0.59	1.27	0.76	-0.12	.50	[.46, .54]
Cow composite	1.80	1.33	1.25	0.82	0.50	.64***	[.61, .67]
Horse composite	3.53	2.11	1.69	1.44	1.01	.78***	[.75, .80]
Pig composite	1.47	0.97	1.16	0.63	0.38	.59***	[.56, .63]
Sheep composite	1.66	1.13	1.30	0.85	0.36	.61***	[.58, .64]
Cuteness							
Dog composite	4.84	1.17	4.80	1.24	0.03	.50	[.46, .53]
Cat composite	4.84	1.59	4.79	1.50	0.03	.52	[.48, .56]
Fowl composite	3.44	1.47	3.65	1.38	-0.15	.46*	[.42, .49]
Cow composite	3.17	1.69	2.86	1.73	0.18	.56**	[.52, .60]
Horse composite	4.70	1.68	4.15	1.72	0.32	.59***	[.56, .63]
Pig composite	3.45	1.68	3.20	1.67	0.15	.54*	[.51, .58]
Sheep composite	3.92	1.64	3.70	1.58	0.14	.54*	[.51, .58]

***$p < .001$, ** $p < .01$, * $p < .05$. $N = 1,203–1,205$. All *M* and *SD* are item averages on a 7-point (1–7) scale with 4 as the midpoint

Logistic Regression: Prediction of Binary Zoophilic Identification by Sexual Interest in Animals-Self-Report and Animal Stimulus Ratings

Table 5 reports a series of logistic regressions examining predictor combinations for binary zoophilia group membership. For the SIA-SR (Model 1), only the zoophilic subscale predicted binary zoophilic identification. For the animal stimulus sexual attractiveness ratings (Model 2), dog and horse ratings of sexual attractiveness each significantly and uniquely predicted zoophilia, controlling for all other rating categories, while cat and fowl sexual attractiveness ratings were inversely associated (likely attributable to low endorsement), and no other rating categories were significant. The

same pattern held for romantic attractiveness ratings (Model 3). Specifically, dog and horse attractiveness ratings (sexual or romantic) each independently predicted a 1.5 to 3.6 increased odds of endorsement of zoophilia identification, suggesting that they represent different patterns of zoophilic interest. When sexual vs. romantic attractiveness ratings for dog and horse stimuli were pitted against each other (Model 4), the sexual attractiveness ratings incrementally predicted zoophilia group membership, while the romantic attractiveness ratings did not. The final regression model (Model 5) demonstrated that when self-reported sexual interest in animals and sexual attraction ratings were compared, the Zoophilia subscale of the SIA-SR (Block 2) remained the only variable uniquely predictive of zoophilia group membership.

Table 5 Logistic regression: Prediction of binary self-reported zoophilia by SIA-SR and animal stimulus ratings

Regression model	B	SE	Wald	p	e^B [95%CI]
Model 1: SIA-SR subscales					
Zoophilia	1.440	.112	165.95	**<.001**	4.219 [3.389, 5.252]
Opportunism	0.026	.085	0.09	.760	1.026 [0.869, 1.211]
Furry Sex	− 0.023	.101	0.05	.819	0.977 [0.802, 1.191]
Zoosadism	0.235	.244	0.93	.335	1.265 [0.784, 2.042]
constant	− 4.984				
Model 2: Sexual attractiveness animal stimulus ratings					
Dog	1.271	.114	123.55	**<.001**	3.563 [2.848, 4.457]
Cat	− 0.624	.147	18.12	**<.001**	0.536 [0.402, 0.714]
Fowl	− 0.811	.209	15.02	**<.001**	0.444 [0.295, 0.670]
Cow	0.131	.134	0.95	.329	1.140 [0.876, 1.483]
Horse	0.519	.071	53.16	**<.001**	1.680 [1.462, 1.932]
Pig	− 0.089	.169	0.28	.597	0.915 [0.657, 1.273]
Sheep	− 0.005	.180	0.00	.978	0.995 [0.699, 1.416]
constant	− 1.761				
Model 3: Romantic attractiveness animal stimulus ratings					
Dog	1.088	.115	90.12	**<.001**	2.969 [2.371, 3.717]
Cat	− 0.468	.113	17.07	**<.001**	0.626 [0.502, 0.782]
Fowl	− 1.188	.215	30.57	**<.001**	0.305 [0.200, 0.465]
Cow	0.264	.172	2.36	.125	1.303 [0.929, 1.826]
Horse	0.431	.075	32.76	**<.001**	1.539 [1.328, 1.784]
Pig	0.224	.184	1.48	.224	1.251 [0.872, 1.794]
Sheep	− 0.283	.189	2.25	.133	0.753 [0.521, 1.091]
constant	− 0.451				
Model 4: Sexual vs. romantic attractiveness animal stimulus ratings					
Dog sexual	0.943	.144	42.83	**<.001**	2.568 [1.936, 3.406]
Dog romantic	0.075	.136	0.31	.578	1.078 [0.827, 1.406]
Horse sexual	0.542	.103	27.90	**<.001**	1.720 [1.406, 2.103]
Horse romantic	− 0.107	.108	0.98	.322	0.899 [0.727, 1.110]
constant	− 2.726				
Model 5: SIA-SR subscales versus Sexual attractiveness animal stimulus ratings					
Block 1					
Dog sexual	0.631	.107	34.74	**<.001**	1.879 [1.524, 2.318]
Horse sexual	0.265	.064	17.21	**<.001**	1.303 [1.150, 1.477]
Opportunism subscale	0.088	.067	1.73	.188	1.092 [0.958, 1.244]
Furry Sex subscale	0.358	.087	16.87	**<.001**	1.430 [1.206, 1.696]
Zoosadism subscale	1.788	.186	92.26	**<.001**	5.976 [4.149, 8.607]
constant	− 5.613				
Block 2					
Dog sexual	0.016	.143	0.01	.909	1.016 [0.769, 1.344]
Horse sexual	− 0.050	.088	0.32	.570	0.951 [0.800, 1.131]
Opportunism subscale	0.044	.085	0.26	.608	1.045 [0.884, 1.234]
Furry Sex subscale	− 0.026	.101	0.06	.801	0.975 [0.799, 1.189]
Zoosadism subscale	0.181	.250	0.52	.470	1.198 [0.734, 1.958]
Zoophilia subscale	1.482	.137	116.30	**<.001**	4.402 [3.363, 5.763]
constant	− 5.009				

Model 1 N = 1,203, Models 2–5 N = 1,119. Significant *p* values in bold font

Discussion

The present study examined the measurement and correlates of zoophilic interest in a large online community sample, two-third of whom identified as having a sexual attraction to animals. Our key aims were to identify the primary domains of sexual attraction to animals, visual stimuli relevant to animal sexual interest, conceptual overlap with other paraphilias, and some of the predictive indicators of zoophilic interest in this largely unstudied field. The results contribute to a greater understanding of the sexual interest patterns for persons with zoophilia and have implications for theory, future research, and clinical practice.

Latent Structure of Zoophilic Interest

In order to determine the latent constructs that underpin self-reported sexual interest and possible subscales of the SIA-SR which may represent these constructs, an EFA was conducted; the results identified four factors labeled *Zoophilia*, *Opportunism*, *Furry Sex*, and *Zoosadism. The Zoophilia* subscale contains items that indicate a sexual interest in nonhuman animals and the desire to have sexual contact with them. Generally, the items included on this scale indicate a preferential sexual attraction to nonhuman animals over humans and a clear desire for sexual and romantic relationships. Zoophilia was the largest subscale with 20 items, so there is some variability in which items could be endorsed and therefore the magnitude of these preferential attitudes.[3] Opportunism included items that indicate a preference for humans, but a willingness to have sexual contact with a nonhuman animal if an opportunity were to arise, making it distinct from the zoophilia subscale. Items on the zoosadism subscale indicated an interest in both zoosadism proper (i.e., a sexual attraction to nonhuman animals in pain) and zoonecrophilia specifically (i.e., a desire to have sexual contact with dead nonhuman animals). Finally, the furry sex subscale contains items related to an interest in anthropomorphized animals and fursuits; this subscale also contained items related to a desire for human partners to act like animals as well (e.g., via pet play, pony play, ponyism, or pup-play").

These subscales are consistent with previous classification systems (Aggrawal, 2011; Earls & Lalumiere, 2009; Emmett et al., 2021b) which differentiate between activities to classify level of interest. Specifically, Aggrawal (2011) has classification for "opportunistic zoosexuals" (Class VII) and "homicidal bestials" (Class IX) which roughly correspond to the *Opportunism* and *Zoosadism* subscales in the current scale. The *Zoophilia* subscale covers many of the behaviors

captured in Aggrawal's (2011) classification system. As predicted, furryism does seem to be a separate phenomenon with a distinct subscale capturing this construct—the *Furry Sex* subscale—although there does seem to be some overlap between those who endorse zoophilia and those who endorse furryism. As posited previously, furryism does seem to overlap with the Aggrawal's (2011) Class I (human–animal role-players) classification as, in addition to behaviors typically associated with furryism (i.e., wearing a fursuit, having sexual contact with others in fursuits, and consuming furry media; Roberts et al., 2015), the subscale also included behaviors described in Class I of Aggrawal's (2011) system (e.g., roleplaying animal-like behavior during human sexual encounters and a desire for human partners to reciprocate such behaviors).

Our findings that behavior reported by the zoophilic community do not fit discretely into Aggrawal's (2011) classifications is supported by other recently published research (Emmett et al., 2021b). Emmett et al. proposed a new classification system for individuals with zoophilic interest which included the categories of Platonic Zoophiles, Zoophilic Fantasizers, Tactile Zoophiles, Opportunistic Zoophiles, Regular Zoophiles, Emotional Exclusive Zoophiles, and Exclusive Zoopiles. While these categories are somewhat different that those proposed in this manuscript, they point to a similar conclusion: the overall diversity of individuals with zoophilic interest and the need for more nuanced research into this population. The present data corroborate the claim that a heterogeneous phenomenon such as zoophilic interest will likely profit from a multidimensional description as we have proposed. Likewise, it is unlikely that a hypothetical 10-prototype categorical classification system (obviously construed along a forensic severity dimension) such as that proposed by Aggrawal (2011) will be empirically supported in community samples.

Predictive Indicators of Self-Reported Zoophilia

In order to assess the predictive accuracy and discriminating properties of the SIA-SR and visual stimulus ratings for binary self-reported zoophilia, ROC analyses were conducted. AUCs for the total scale and all subscales of the SIA-SR had excellent discrimination for zoophilic individuals (Rice & Harris, 2005). When entered into a logistic regression, only the zoophilia subscale was predictive of zoophilic self-identification, leading to a need for further research into the other subscales. Although the discrimination properties of the zoosadism subscale for self-reported zoophilia was excellent, this subscale merits further exploration as individuals with zoophilic interest are not a homogenous group. While some individuals will use force or harm during their sexual acts with animals—up to and including death—this is uncommon in contrast to the large number of individuals

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[3] Means and SDs for the scale items are reported in supplemental Table S4.

who engage in sexual practices intended to minimize the potential for physical injury or discomfort to the animal (Beetz, 2005). Moreover, our main source of recruitment may have contributed to this lack of discriminatory capability for zoosadism/necrophilia specifically as our main source for recruiting individuals who identify as zoophilic, ZooVille, condemns zoosadist acts and cite a focus on "ethical practices" (ZTHorse, personal communication, August 2020).

The people in this survey endorsed a myriad animal sexual interests from the comprehensive stimulus set, but the endorsement of sexual interest in horses and dogs was most prominent, while attraction to cats and fowl tended to be low, and sexual attraction to pigs, cows, and sheep tended to be somewhere in the middle. Dog and horse sexual and romantic attractiveness ratings also had the largest and most consistent associations with SIA-SR item scores. The popularity of the dog and horse images is unsurprising as previous literature has confirmed the popularity of these animals as sources of sexual interest (Emmett et al., 2021a, 2021b; Miletski, 2002; Munro & Thrusfield, 2001; Williams et al., 2008). While animal stimulus ratings of sexual attractiveness, romantic attraction, and cuteness were moderately intercorrelated, they clearly represented distinct underlying phenomena. Sexual and romantic attractiveness ratings discriminated between zoophilic and non-zoophilic persons well, but cuteness did not; whether somebody has zoophilia or not, a "cute" dog is a "cute" dog. The results of logistic regression, however, showed that sexual attractiveness ratings trumped romantic attractiveness ratings in the prediction of binary zoophilia; dog and horse sexual attractiveness ratings each independently predicted a 1.7 to 2.5 increased odds of endorsement of zoophilia identification controlling for romantic attraction. The implications are that while romantic attraction (i.e., animals as romantic partners) appears to be one component of zoophilia, this has much overlap with sexual attraction.

Interestingly, while domains of visual animal sexual attractiveness and self-reported domains of sexual interest predicted binary zoophilic identification, the lone incrementally significant predictor was the zoophilia subscale from the SIA-SR, with each one-point increase in average item endorsement corresponding to a 4.4 increase in the odds of zoophilic identification, controlling for other model predictors. These results demonstrate that a psychometrically refined measure of zoophilic interest, such as the 20-item zoophilia subscale, has strong discriminating power for self-reported zoophilia over and above other indicators.

Zoophilia, Furryism, and Paraphilias

With 146,627 members, 43,060 threads, and 1,077,680 messages for Zooville alone, the online zoophilia community appears to be a large and well supported international community of persons who share a sexual attraction to animals.

Our research also demonstrated that the presence of self-reported zoophilia coincides with the endorsement of other paraphilic behaviors, with the largest associations being with furryism (which had a high frequency) and necrophilia (which had a very low frequency). Sexology research has found that paraphilias tend to be intercorrelated, as do specific fetishes (Seto et al., 2014). Some findings may reflect the nature of zoophilia—for instance, higher rates of public masturbation may reflect that zoophilic persons consider the areas where their animals of interest reside (e.g., barn, field, etc.) to be public areas. By contrast, the low rates of telephone scatalogia could be that phone calls as a medium have been replaced with more private systems (e.g., discord, telegram, whatsapp), which do not reveal one's phone number, allow media sharing, and are often encrypted.

The conceptual overlap with furryism, however, bears further mention. Zoophilia was correlated with furryism; however, more than half (55.8%) of persons with zoophilia were not furries, and while supplemental analyses (not reported due to space considerations) demonstrated that furryism was correlated with indicators of zoophilia, these associations were decreased to nonsignificance after controlling for self-identified zoophilia. Thus, the link between furryism and these zoophilic indicators would appear to be only by virtue of shared variance with zoophilia. That is, we would argue that zoophilia indicates a higher likelihood of furryism, however, furryism does not necessarily entail a greater likelihood of zoophilia.

Strengths, Limitations, and Future Research Directions

The present study has a number of strengths and limitations with implications for future research and practice. First, the sample included in this research was mainly composed of non-heterosexual, White men with university degrees and liberal views, leaving those individuals of other diverse backgrounds potentially less well understood in the area of human–animal sexual interest. A further study limitation is that zoophilia was assessed via self-report identification, rather than by a third party such as a registered clinician with expertise in diagnosis and human sexuality. This concern is offset, however, by the anonymous nature of the survey and research access to people in the zoophilia online community, which likely increases the veracity of self-identification, and are strengths of the study. Future studies would benefit from having an independent clinical rater confirm the self-reported zoophilic interest to mitigate the potential for possible inflation of linear relations due to shared method variance from reliance on self-report. Additional strengths are the level of consultation provided by the ZooVille community in selecting and refining the psychometric and visual stimulus measures of animal sexual interest (increasing internal

and construct validity), the level of enthusiasm by the online community to participate in the present research, as well as a large sample size that aids generalizability and statistical power. In general, the literature on prevalence of sexual interest in animals is largely based on self-reports and the field might benefit from using more sophisticated approaches (e.g., randomized response techniques) to better estimate the true prevalence of the phenomenon.

There are also research and potential practice implications. First, a cut score approximately 1 SD above the mean on the SIA-SR overall correctly classified 93% of individuals by zoophilic identification; similar results would be achieved using the 20-item zoophilia subscale alone and the 1 SD criteria (i.e., item average around 3). The results suggest that the measure and its subscale could have utility for research or clinical application to accurately classify individuals by zoophilic interest, bearing in mind that as with all self-report measures, the potential for impression management and faking always exists. (Indeed, there were a very small number of individuals declaring zoophilic interest who had low scores, as well as individuals denying such interest with very high scores.) Future research might consider using more sophisticated methods of identifying optimal fit based on AUCs rather than SDs (e.g., Zweig & Campbell, 1993). Further, the image ratings of these animal images (available upon request) provide a potential stimulus set for future research intended to measure interest in animals as an alternative to phallometry. Of note, examining viewing time for the images (Schmidt et al., 2017) should be examined for validation purposes. Moreover, as the photographs were a mix of baby and adult animals in various poses and there have been reported differences in cuteness between adult and baby animals (Borgi et al., 2014), future research should examine the differences between these variables in the photos.

Moreover, the latent structure of the SIA-SR and the overlap between zoophilia and different categories of paraphilic behavior indicate the heterogeneity of this phenomenon and the potential for different latent profiles or latent classes (e.g., zoophilic vs. zoosadistic). Given the overlap among paraphilias and research indicating zoophilia among individuals in the sadomasochism community (Sandnabba et al., 2002), it would be worth exploring the use of animals to inflict humiliation on submissive partners in the BDSM scene. Although this exploration was outside the scope of the present study, future research using latent profile analysis on the zoophilia indicators in the present study could identify different profiles or subgroups. Additional lines of research should also cross-validate the factor structure of the SIA-SR through confirmatory factor analytic procedures with independent samples from the zoophilia and broader communities. Taken together, the results of this study indicate that zoophilia is a very complex phenomenon and those individuals with a sexual interest in animals are not a homogenous group. It is hoped that these findings and the resultant scale will help to facilitate more research into the area and will help to stimulate research and bolster understanding of individuals with sexual interests in animals.

Declarations

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