

PARAPHILIAS

Aggression-Related Sexual Fantasies: Prevalence Rates, Sex Differences, and Links With Personality, Attitudes, and BehaviorRebecca Bondü, Prof. Dr.,^{1,2,a} and Joseph B. Birke, MSc^{1,a}

ABSTRACT

Background: Aggression-related sexual fantasies (ASF) are considered an important risk factor for sexual aggression, but empirical knowledge is limited, in part because previous research has been based on predominantly male, North-American college samples, and limited numbers of questions.

Aim: The present study aimed to foster the knowledge about the frequency and correlates of ASF, while including a large sample of women and a broad range of ASF.

Method: A convenience sample of $N = 664$ participants from Germany including 508 (77%) women and 156 (23%) men with a median age of 25 (21–27) years answered an online questionnaire. Participants were mainly recruited via social networks (online and in person) and were mainly students. We examined the frequencies of (aggression-related) sexual fantasies and their expected factor structure (factors reflecting affective, experimental, masochistic, and aggression-related contents) via exploratory factor analysis. We investigated potential correlates (eg, psychopathic traits, attitudes towards sexual fantasies) as predictors of ASF using multiple regression analyses. Finally, we examined whether ASF would positively predict sexual aggression beyond other pertinent risk factors using multiple regression analysis.

Outcomes: The participants rated the frequency of a broad set of 56 aggression-related and other sexual fantasies, attitudes towards sexual fantasies, the Big Five (ie, broad personality dimensions including neuroticism and extraversion), sexual aggression, and other risk factors for sexual aggression.

Results: All participants reported non-aggression-related sexual fantasies and 77% reported at least one ASF in their lives. Being male, frequent sexual fantasies, psychopathic traits, and negative attitudes towards sexual fantasies predicted more frequent ASF. ASF were the strongest predictor of sexual aggression beyond other risk factors, including general aggression, psychopathic traits, rape myth acceptance, and violent pornography consumption.

Clinical Translation: ASF may be an important risk factor for sexual aggression and should be more strongly considered in prevention and intervention efforts.

Strengths and Limitations: The strengths of the present study include using a large item pool and a large sample with a large proportion of women in order to examine ASF as a predictor of sexual aggression beyond important control variables. Its weaknesses include the reliance on cross-sectional data, that preclude causal inferences, and not continuously distinguishing between consensual and non-consensual acts.

Conclusion: ASF are a frequent phenomenon even in the general population and among women and show strong associations with sexual aggression. Thus, they require more attention by research on sexual aggression and its prevention.

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INTRODUCTION

Fantasies are an integral part of human sexuality and most adults have sexual fantasies while masturbating, during sexual intercourse, and in daily life.¹ Sexual fantasies can be understood as "almost any mental imagery that is sexually arousing or erotic to the individual" (p. 470).² Their contents typically reflect a sexual interest in certain objects and actions^{3–7} and, thus, may also refer to aggressive behavior. Little, however, is known about the proportion of individuals that experience aggression-related sexual fantasies (ASF), that is, that fantasize or daydream about inflicting harm on others for the purpose of sexual arousal. This is particularly true with regard to non-American general-population samples and women.

In addition, the contents of ASF are not well understood. Previous research often used single or small numbers of items that mainly covered typical sadomasochistic practices, but rarely considered further potentially relevant acts, such as verbal sexual aggression (eg, insulting somebody for sexual purposes, talking somebody into sexual acts). It is, therefore, fairly unknown whether ASF in general-population samples mainly pertain to the infliction of mild pain (eg, pulling the sexual partner's hair) or also include more serious acts that are presumably undesired by the sexual partner (eg, raping somebody). Finally, little is known about the correlates of ASF in terms of potential antecedents and consequences. Most importantly, more research is needed on the question whether ASF are associated with sexual aggression above and beyond other risk factors.

The present study, therefore, examined ASF with a large number of items that covered a broad range of aggression-related acts in a mainly female sample from the general population. We aimed to add to the knowledge about the frequency and correlates of ASF—tapping into the ongoing conversation about the relevance of sexual fantasies for sexual behavior^{8,9} and to inform prevention measures for sexual aggression.

AGGRESSION-RELATED SEXUAL FANTASIES

Aggression-related sexual fantasies (ASF) are sexually arousing cognitions about the infliction of physical or mental harm on another person.^{5,10–12} Individuals may experience ASF rather passively (eg, as fleeting thoughts or short memories) or they may actively fantasize and daydream, that is, modulate the contents of the fantasies, for example by deliberately envisioning or elaborating specific acts.^{3,13} ASF comprise cognitions about a broad spectrum of aggression-related sexual acts, such as scratching, intimidating, insulting, harassing, hurting, raping, or killing someone for the sake of one's own sexual pleasure. They may consensually or non-consensually be put into action. That is, they may be arousing to the inflicting party because it is the receiving party's wish to experience pain and harm or, on the contrary, because force must be used to inflict this pain and harm.

Sexual fantasies are multidimensional. Previous research has consistently identified subscales of romantic (eg, kissing), experimental (eg, having sex with more than one person), violence-, force-, and dominance-related, as well as masochistic fantasies.^{14–18} Men reported more frequent overall sexual fantasies¹⁹ as well as sexual fantasies including violence, force, and dominance than women.^{20,21} For example, prevalence rates of sadistic fantasies or ASF in previous research ranged between 9.3 and 68% for men and 0 and 23.8% for women. Women reported more or as many fantasies of submission and masochism than or as men.^{22,23} Up to now, however, only a small number of studies empirically tested sex differences in sexual fantasies using inference statistics.^{21,24}

Prevalence rates of sadistic fantasies and ASF in previous research also depended on item wordings and item numbers.^{21,25–27} Concerning item wordings, for example, 42.6% out of 54 undergraduate men and 22.6% out of 106 undergraduate women reported to fantasize about "Forcing a partner to submit",²⁶ 22% out of 717 men and 10.8% of 799 women reported to "have fantasized about forcing someone to have sex",²¹ and 12% of men and 0% of women reported fantasies about torturing the sex partner.²⁷ Concerning item numbers, for example, one study found prevalence rates of sadistic fantasies of 62% and 65% in two independent samples of undergraduate men when using a composite score of 13 fantasies.²⁸ In contrast, two other studies found only 21.8% out of 367 men to report fantasies about sexual sadism²⁹ and 9.5% out of 475 men and 5.1% out of 567 women to report the wish to experience sexual sadism²⁰ when using only single items.

Despite the large differences in prevalence rates, these findings indicate that ASF are frequent even in general-population samples and even though most studies merely covered fantasies about a small range of aggression-related sexual acts. Items reflecting fantasies of verbal and relational sexual aggression (eg, verbally degrading somebody or talking someone into sexual acts), that are also important aspects of sexual aggression and could be more prevalent also among women, were seldom studied. Therefore, prevalence rates for these fantasy contents remain fairly unknown. Furthermore, most research on ASF used North American samples. Therefore, the generalizability of findings is in question, particularly because one previous study with German participants showed comparably low prevalence rates for fantasies about sexual sadism.²⁹

Finally, research on sadistic fantasies and ASF has struggled to disentangle consent and non-consent in the fantasized acts (also note that not all cognitions about sexual aggression need to result in sexual arousal). Whereas some items clearly signal non-consent by the receiving party (eg, "Forcing somebody to. . ." or "raping a woman") other acts may or may not be consensually be put into action, even in fantasy (eg, fantasies about being violent towards, whipping, beating, spanking, and/or degrading the sexual partner).^{25–27,30} Hence, the inflicting party may experience sexual arousal either because pain and harm are inflicted in a consensual

act that is enjoyed by the receiving party or because force has to be used and because the act is against the will of the receiving party. Consequently, there is an ongoing debate about whether ASF can be considered to all belong to the same spectrum^{31–33} or whether a clearer distinction needs to be made between fantasies about consensual and non-consensual acts. Non-consensual acts associated with resistance would clearly relate to rape and coercion (ie, aggression in its actual sense), whereas fantasies about the consensual infliction of pain and suffering may be relevant for example in sad(omasoch)istic sexual encounters.^{34,35} The present ASF measure included both fantasies that are explicitly against the will of the sexual partner (“...to intimately touch someone against their will”) and fantasies that may or may not be consensually put into action (“... to blindfold somebody during sex”). It, therefore, allows for a more differentiated view on ASF and their relations with traits, attitudes, and behavior than often was the case in previous research.

LINKS WITH TRAITS AND ATTITUDES

Up to now, only a few studies examined potential antecedents and predictors of ASF. For example, negative childhood experiences, sexual preferences, and psychopathy were discussed.^{5,6,11,12,36} Psychopathy, a multifaceted syndrome that comprises the tendency to antisocial, egotistic conduct and impaired empathy and remorse, was consistently positively linked to ASF (and a general tendency towards sexual fantasy) in both sex-offender samples and general-population samples.^{11,12,28,37,38}

However, it was suggested that it may be worthwhile to examine not only specific personality traits with close relations to sexual aggression, but also broader traits, because the relevance of both may vary depending on the sample³⁶ and the research design. Indeed, some previous research examined the relations between ASF and the Big Five, that is, the five key personality dimensions: extraversion, the tendency to experience positive affect and to enjoy social interactions; neuroticism, the tendency to experience negative affect, such as depression, anxiety, or hostility; agreeableness, the tendency to strive for cooperation and social harmony; conscientiousness, the tendency to be diligent, efficient, dutiful, disciplined, and reliable; openness to experience, the tendency to seek out new ideas or values and intellectual stimulation. Findings were inconsistent: In a study with 88 participants, neither sadistic fantasies nor fantasies about sexual assault were related to any of the Big Five.²⁸ Sadomasochistic tendencies were exclusively related to openness to experience in men.³⁹ Individuals with a sexual preference for sadomasochism, particularly those preferring a dominant role, reported lower neuroticism as well as higher extraversion, openness, conscientiousness, and agreeableness than controls.⁴⁰ Finally, neuroticism may predispose to situational negative affect, that has been related to sexual aggression.⁶

Not only traits, but also attitudes were assumed to facilitate sexual aggression, particularly rape myths acceptance, hostility

against women, or high mating effort.^{6,13,36} Attitudes towards one's sexual fantasies were related to sexual fantasies¹³: There were consistent negative relations between negative feelings towards one's sexual fantasies and sexual fantasies.^{23,41,42} Positive ratings of fantasies on sexual dominance were positively related to sexual aggression.⁴³ Sex offenders were shown to use deviant fantasies to promote a positive mood,⁴⁴ suggesting positive attitudes towards these fantasies. However, more research is needed in order to disentangle the relations between attitudes towards sexual fantasies and ASF in the general population.

LINKS WITH SEXUAL AGGRESSION

ASF are prevalent in sex offenders^{45–47} and were, therefore, considered a risk factor for sexual aggression.^{48–51} They may serve as cognitive trial-runs for sexual aggression, become more detailed and elaborated over time, and create an increasing urge to be put into action.⁵² ASF, however, also predicted different forms of sexual aggression, such as sexual coercion and rape proclivity (ie, the self-reported likelihood to rape in the case of impunity), in general-population samples.^{25,53–55} They were the strongest predictor of coercion against women with beta-weights $>.6$ beyond psychopathy, general aggression, pornography consumption, or negative attitudes towards women, and mediated the effects of childhood physical, verbal, and sexual abuse in both a sex-offender sample and a general-population sample.^{11,12}

THE PRESENT STUDY

Research on ASF that cover a broad range of harmful behavior that may be inflicted on a sexual partner is sparse, particularly in women samples and general-population samples outside North America. Therefore, the present study examined the frequency of a broad range of sexual fantasies about verbal and physical, clearly non-consensual and potentially consensual aggression-related sexual behavior. It used a large general-population sample with a high proportion of women. In doing so, it aimed to add to the knowledge about aggression-related sexual fantasies, their potential correlates, and their implications for sexual aggression.^{8,9} This may help to clarify the potential role of ASF for sexual aggression and inform prevention and intervention measures to prevent future sexual aggression.

Based on the previous research and theoretical considerations outlined above, we had 13 hypotheses as outlined in [Table 1](#). This included expecting to find subscales that reflect romantic, affectionate (Hypothesis 1a), experimental (Hypothesis 1b), and masochistic (Hypothesis 1c), as well as physically, verbally, and relationally aggressive fantasies (Hypothesis 1d) when using the present fantasy measure. We expected all subscales to be positively correlated (Hypothesis 1e). We expected men to report more sexual fantasies and ASF than women (Hypothesis 2a) and women to report more masochistic fantasies than men (Hypothesis 2b). We expected positive relations between ASF and

Table 1. Summary of hypotheses

Hypothesis	Result	
1	Emergence of subscales reflecting different sexual fantasy themes	
A	Affectionate/romantic sexual fantasy subscale	confirmed
B	Experimental sexual fantasy subscale	confirmed
C	Masochistic sexual fantasy subscale	confirmed
D	Physically, verbally and relationally aggressive sexual fantasy subscale	not confirmed (instead: three subscales reflecting increasing severity of aggression and consensuality/non-consensuality)
E	Positive correlations between all sexual fantasy subscales	confirmed
2	Gender differences on emerging sexual fantasy subscales	
A	Men report more total sexual fantasies and ASF than women	confirmed
B	Women report more masochistic sexual fantasies than men	not confirmed (no gender differences)
3	Relations between ASF and different traits and attitudes	
A	Positive relations between ASF and openness to experience	only partially confirmed (only slightly painful ASF)
B	Positive relations between ASF and extraversion	only partially confirmed (only slightly painful ASF)
C	Negative relations between ASF and agreeableness and conscientiousness	confirmed
D	Positive relations between ASF and psychopathic traits (thrill seeking & remorselessness)	confirmed
4	Negative relation between ASF and negative attitudes towards sexual fantasies	not confirmed (instead: positive correlations with positive attitudes)
5	Relations between ASF and sexual aggression and risk factors for sexual aggression	
A	Positive relation between ASF and sexually sadistic behavior	confirmed
B	Relations persist beyond general aggression, psychopathic traits, lack of empathy, violent pornography consumption and rape myth acceptance	confirmed
C	Positive relations between ASF with general aggression, psychopathic traits, lack of empathy, violent pornography consumption, and rape myth acceptance	confirmed

openness to experience, because openness should predispose to the willingness to try new and exceptional behavior (Hypothesis 3a). We also expected a positive correlation with extraversion that comprises the tendency towards social dominance that may be relevant in ASF (Hypothesis 3b) as well as negative relations with agreeableness and conscientiousness that are typically associated with more prosocial behavior and less antisocial behavior (Hypothesis 3c). Because psychopathy is an important risk factor for (sexual) aggression, we expected positive correlations between psychopathic traits and ASF (Hypothesis 3d). In line with previous research, we expected a negative relation between negative attitudes towards sexual fantasies and ASF (Hypothesis 4). Finally, because ASF are considered a risk factor for sexual aggression, we expected positive relations between ASF and sexual aggression as operationalized via sexually sadistic behavior (Hypothesis 5a) beyond other well-established risk factors for sexual aggression (Hypothesis 5b), such as general aggression, psychopathic traits, lack of empathy, violent pornography consumption, and rape myths acceptance.^{49,56,57} We also expected positive relations between ASF and these other risk factors for sexual aggression (Hypothesis 5c).

METHOD

Sample

The present study used a convenience sample that comprised $N = 664$ participants with a median age of 25 years ($IQR = 21-27$) who completed all questions on the frequency of their sexual fantasies. We collected data in an online survey and contacted participants via social networks (eg, university networks, friend networks), via personal contact, and via ads in the university building. Out of the participants, 77% were women; 85% were heterosexual, 4% homosexual, and 11% bisexual. Out of the participants, 62% were in a relationship with a median duration of 30 months ($IQR: 15-55$) (mean duration: 3.7 years, $SD = 4.24$, range: 0.1–37.1 years); 26% reported to be employees, officials, or freelancers, 28% reported to be in marginal employment, 46% reported to not have a job. Out of these 46%, 97% were students. Out of these students, 63% studied psychology. This may explain the large proportion of women in our sample, because the proportion of women to men in this course of studies is roughly 3:1. In order to control for the potential effects of employment status, we reran all analyses while

Table 2. Life time prevalence rates for the total group and men and women and the final factor solution of the aggression-related sexual fantasies measure

Item	% total	% women	% men	Factor loadings							
				1	2	3	4	5	6		
... to rape someone.	11.4	6.9	26.3	.907							COERCION
... to ignore someone's protest against sexual activities.	21.1	16.3	36.5	.886							
... to force someone into sexual actions.	13.7	9.6	26.9	.871							
... to intimately touch someone against their will.	20.3	15.0	37.8	.870							
... to detain someone against their will.	14.8	11.4	25.6	.859							
... to physically harass another person.	20.9	17.5	32.1	.820							
... to rub against a person against their will.	14.6	10.2	28.8	.767							
... to humiliate another person during sex.	12.0	7.3	27.6	.690							
... to scare another person during sex.	9.3	5.9	20.5	.670							
... to threaten somebody with words during sex.	11.9	9.6	19.2	.630							
... to persuade somebody to engage in sexual acts.	45.9	38.0	71.8	.594							
... to intimidate another person.	26.7	23.4	37.2	.561							
... to have sex with a beloved partner.	98.9	99.2	98.1		.851						AFFECTIONATE
... to pet and kiss the partner during sex.	97.7	98.2	96.2		.837						
... to passionately kiss someone during sex.	98.0	98.0	98.1		.792						
... to seduce someone.	97.0	97.0	96.8		.574						
... to be humiliated during sex.	40.4	41.1	37.8			.863					MASOCHISTIC
... to be raped.	38.6	42.7	25.0			.833					
... to have pain during sex.	43.5	44.3	41.0			.756					
... to hurt someone with a knife.	5.0	3.9	8.3	.321			.816				INTENSE
... to kill somebody.	1.5	0.4	5.1				.814				
... to inflict permanent physical marks (eg, scars).	10.7	9.8	13.5				.641				
... to use weapons.	3.9	2.0	10.3				.631				
... to strangle someone (eg, with a rope, belt).	8.4	5.5	17.9				.570				
... to painfully scratch someone during sex.	41.6	43.7	34.6					-.724			SLIGHTLY PAINFUL
... to pinch someone during sex.	40.2	38.0	47.4					-.717			
... to pull someone's hair during sex.	45.5	40.9	60.3					-.709			
... to bind someone during sex.	59.5	57.7	65.4					-.542			
... to blindfold another person.	66.6	66.5	66.7					-.519			
... to have sex in unusual places.	96.4	96.9	96.9						-.726		EXPERIMENTAL
... to have sex with several people at the same time.	83.4	80.3	80.3						-.690		
... to be watched, photographed, or filmed during sex.	64.8	65.7	65.7						-.636		

including employment status as an additional control variable. Because the pattern of results did not change, we continue with reporting the findings without this variable.

Measures

Aggression-Related Sexual Fantasies. We selected and translated single items from previous studies^{14,25,58} and added new items covering further behavior, particularly verbal and relational sexual aggression. Participants rated the frequency of non-aggressive (eg, “I fantasize or daydream about... caressing and kissing the body of my sexual partner”, 16 items), masochistic (eg, “...to be raped”, 3 items), and aggression-related sexual fantasies (eg, “... scare another person during sex”, 37 items) that had been pretested in a pilot study on a 6-point scale (1 *never*, 2 *several times in my life*, 3 *several times a year*, 4 *several times a month*, 5 *several times a week*, 6 *daily*). See Table 2 and Supplementary Material S1 for a complete list of items. After exploratory factor analyses (see below), we computed mean scores for all resulting fantasy subscales and a total ASF score. We also computed a total score from all items that were not included into the ASF total score as an indicator for the general frequency of sexual fantasy.

Big Five. We measured the Big Five with the Big Five Inventory-SOEP.⁵⁹ Agreeableness (“I am a person who... can forgive”) was measured via four items, neuroticism (“...worries a lot”), conscientiousness (“... is rather lazy” [revised]),

extraversion (“is communicative/talkative”), and openness to experience (“... has a vivid fantasy/imagination”) were measured via three items, respectively. Response options ranged from 0 *not at all true* to 6 *absolutely true*.

Psychopathic Traits. We measured psychopathic traits via the 10 items of the remorselessness (eg, “I seldom regret things I do, even if other people feel that they are wrong.”) and thrill seeking (eg, “I like to do things just for the thrill of it.”) subscales of the Youth Psychopathic Traits Inventory for participants between 12 and 25 years⁶⁰ (German translation:⁶¹). We focused on these subscales due to time restrictions and because we expected close relations with ASF. Response options ranged from 1 *not at all true* to 5 *exactly true*.

Attitudes towards Sexual Fantasies. We measured attitudes towards one's sexual fantasies via 16 items from the Hurlbert Index of Sexual Desire.⁶² Response options ranged from 1 *not agree at all* to 5 *totally agree*. We conducted an exploratory factor analyses in order to ensure the reliable assessment of attitudes towards one's own sexual fantasies. It resulted in two factors representing positive (eg, “I enjoy my sexual fantasies”; 7 items) and negative attitudes towards sexual fantasies (eg, “I feel guilty when I have sexual fantasies”; 4 items).

Sexual Aggression. We measured sexual aggression via eight items of the sadomasochism subscale (eg, “I have hit somebody

during sexual contact”, “The more frightened a person became, the more my sexual arousal increased”, “It sexually aroused me to play with death during a sexual encounter”) of the Multiphasic Sex Inventory (MSI⁶³; German translation⁶⁴) that cover consensual or non-consensual sadistic acts. Note that we excluded two items from the original scale that reflected sadistic fantasies. Response options ranged from 1 *never* to 5 *very often*.

General Aggression, Trait Anger, and Hostility. We measured general aggression, trait anger, and hostility with the 29-item Aggression Questionnaire⁶⁵ and four items from a German adaptation of the Buss and Warren aggression questionnaire.⁶⁶ We assessed general aggression via a combined score of physical (eg, “Once in a while I cannot resist the urge to strike another person”, 9 items), verbal (“When people annoy me, I may tell them what I think of them”, 5 items), and relational aggression (eg, “I sometimes spread gossip to damage others’ reputation”, 4 items). Trait anger and hostility were assessed via seven (eg, “I sometimes feel like a powder keg ready to explode”) and eight (eg, “I am sometimes eaten up with jealousy”) items, respectively. Response options ranged from 1 *not at all true* to 5 *exactly true*.

Rape Myth Acceptance. We used the 29-item version of the Modern Myths About Sexual Aggression Scale⁶⁷ to assess rape myth acceptance (eg, “One reason for rape is women turning on men”). Response options ranged from 1 *not agree* to 5 *totally agree*.

Violent Pornography Consumption. Participants who reported pornographic video consumption (71.7%) were asked for potential violent contents via 17 items (eg, “How often do you watch movies in which somebody is forced to have sexual intercourse”). Response options ranged from 1 *never* to 5 *very often*. Participants who reported no pornography consumption were coded to never watch violent pornography.

We computed mean scores for all variables. Table 2 displays internal consistencies.

Procedure

Participants were administered a 13-page online questionnaire via www.soscisurvey.de. On the first page of the questionnaire, participants were informed about the contents and purpose of the study. Participants attended voluntarily, were guaranteed privacy, and informed that they could quit the questionnaire at any time. At the end of the questionnaire, we provided contact data of institutes that offer help for personal or mental health problems. The minimum age for participation was 18 years. Younger participants were immediately directed to the last page of the questionnaire that contained the contact data of the institutions that may provide help. Student participants could receive course credit for their participation. All participants could participate in a lottery to win 1 out of 10 vouchers for an online retail company.

Statistical Analysis

In order to examine the factor structure of our questionnaire, we computed a series of exploratory factor analyses using oblimin rotation that allows for correlated factors ($N = 664$) in SPSS 27.0.⁶⁸ We iteratively excluded items with loadings $<.4$ on all factors and/or loadings $>.4$ on two or more factors until all remaining items showed item loadings $>.4$ on only one factor. We then used the remaining items in order to examine potential gender differences in the factor structure via multi-group confirmatory factor analysis in Mplus 8.0.⁶⁹ The latent factors corresponding with the subscales that resulted from the exploratory factor analysis were indicated by test-halves, respectively.⁷⁰ We compared different levels of measurement invariance. We inspected χ^2 -difference test, absolute fit indices, and decreases in CFI-values to determine the level of MI. We considered the model fit acceptable if the goodness of fit indicators were: CFI $\geq .95$, RMSEA $\leq .08$, and SRMR $\leq .06$.⁷¹

To examine potential gender differences in the mean levels of our study variables, we computed two multivariate analyses of covariance (MANCOVA) controlling for age. The first MANCOVA included the six sexual-fantasy subscales and the ASF-total score (all participants). The second MANCOVA included all other variables (all participants that answered all questionnaires, $N = 539$). If a multivariate main effect of gender emerged, we investigated mean level gender differences in subscales as well.⁷² Partial eta squared (η_p^2) quantifies the magnitude of difference: values > 0.01 are considered small, values > 0.06 medium and values > 0.14 large⁷³ (Table 3).

In order to examine the relations between the ASF and the other study variables, we computed and inspected Pearson correlations first. Then we conducted hierarchical regression analyses. In the first regression analysis, we predicted ASF by age, gender, the general frequency of sexual fantasies, the Big Five, psychopathic traits, and positive and negative attitudes towards one’s sexual fantasies. In the second regression analysis, we predicted sexually sadistic behavior by age, gender, general aggression, trait anger, hostility, psychopathic traits, empathy, rape myths acceptance, violent pornography consumption, and ASF. That way, we examined whether ASF would predict this behavior beyond the other risk factors. We report standardized beta-coefficients that range between -1 and 1 and indicate the strength of the relation with the outcome.

RESULTS

Factor Structure of Sexual Fantasies

In the exploratory factor analysis, the scree-plot suggested five subscales, but the iterative proceeding resulted in a well-structured and well-interpretable 6-factor solution. These factors comprised 32 items with factor loadings $>.4$ on only one factor. Table 2 displays all items and factor loadings of the final factor solution. All six factors had Eigenvalues > 1 and together they explained 66.5% variance. Three factors reflected ASF.

Table 3. Internal consistencies, mean values, standard deviations, median, and interquartile range of all sexual-fantasy variables for the total group and separately for men and women

	α	Total N = 664 M (SD)	Men N = 156 M (SD)	Women N = 508 M (SD)	F(1, 660)	η_p^2
Affectionate Sexual Fantasies	.790	4.40 (0.88)	4.50 (0.92)	4.37 (0.87)	3.49	.005
Experimental Sexual Fantasies	.699	2.81 (0.92)	3.15 (1.03)	2.70 (0.85)	29.95***	.043
Masochistic Fantasies	.831	1.82 (1.06)	1.73 (1.09)	1.85 (1.04)	1.52	.002
Slightly Painful/Consens. Fant.	.776	1.96 (0.84)	2.15 (0.91)	1.91 (0.81)	10.52**	.016
Coercive Fantasies	.947	1.96 (0.65)	1.67 (0.96)	1.23 (0.48)	60.62***	.084
Intensely Violent Fantasies	.835	1.10 (0.36)	1.19 (0.52)	1.07 (0.29)	12.99***	.019
Total Aggr. Sexual Fantasies	.929	1.42 (0.54)	1.67 (0.76)	1.35 (0.42)	46.75***	.066
Aggressive Sexual Behavior [†]	.862	1.17 (0.38)	1.31 (0.56)	1.13 (0.29)	19.58***	.036
Positive Attitudes [†]	.803	3.80 (0.06)	4.10 (0.55)	3.71 (0.65)	36.64***	.066
Negative Attitudes [†]	.775	1.53 (0.63)	1.52 (0.64)	1.52 (0.63)	0.68	.001
Conscientiousness [†]	.696	4.98 (1.04)	4.56 (1.09)	5.10 (1.00)	24.93***	.046
Extraversion [†]	.825	4.96 (1.23)	4.74 (1.43)	5.03 (1.16)	3.40	.007
Agreeableness [†]	.453	5.47 (0.93)	5.41 (0.93)	5.48 (0.93)	0.04	.000
Openness [†]	.640	5.55 (0.89)	5.62 (0.90)	5.53 (0.87)	0.94	.002
Neuroticism [†]	.701	4.40 (1.21)	4.03 (1.21)	4.50 (1.19)	13.48***	.025
Psychopathic Traits [†]	.796	2.18 (0.58)	2.46 (0.65)	2.09 (0.53)	39.80***	.071
General Aggression [†]	.808	1.87 (0.45)	2.12 (0.48)	1.80 (0.41)	46.78***	.083
Trait Anger [†]	.799	2.15 (0.68)	2.13 (0.64)	2.15 (0.68)	0.24	.000
Hostility [†]	.835	2.33 (0.77)	2.40 (0.83)	2.31 (0.75)	1.10	.002
Empathy [†]	.759	3.39 (0.41)	3.26 (0.49)	3.43 (0.38)	13.05***	.025
Rape Myth Acceptance [†]	.932	1.96 (0.57)	2.13 (0.68)	1.92 (0.52)	15.90***	.030
Violent Pornogr. Consumption [†]	.951	1.72 (0.70)	1.88 (0.79)	1.66 (0.71)	26.21***	.048

**P < .01
 ***P < .001
[†]F(1, 519)

Contrasting Hypothesis 1d that assumed that these factors would reflect verbal, physical, and relational aggression, they instead reflected an increasing severity of aggression. The first ASF factor comprised fantasies about only slightly painful acts and/or acts that can consensually be put into action even among individuals without an interest in sadistic and masochistic practices (eg, "...pulling someone's hair during sex", 5 items; Eigenvalue = 1.218). The second ASF factor mainly comprised fantasies about clearly coercive, non-consensual acts (eg, "...raping someone", 12 items, Eigenvalue = 11.597). The third ASF factor represented fantasies about acts of intense violence and/or including the use of weapons (eg, "...hurting someone with a knife", "...killing somebody during sex"; 5 items; Eigenvalue = 1.848). The other three factors reflected affectionate (eg, "...having sex with a beloved partner", 4 items; Eigenvalue = 3.222), experimental (eg, "...being watched, photographed, or filmed during sex", 3 items; Eigenvalue = 1.112), and masochistic sexual fantasies (eg, "...being raped", 3 items; Eigenvalue = 2.302), thus supporting Hypotheses 1a-c. In line with Hypothesis 1e, all subscales were positively related, indicating an underlying general tendency to experience sexual fantasies.

That the three ASF factors reflected a growing severity of aggressive acts may also be the result of differences in item difficulty rather than in item content. We, therefore, repeated the exploratory factor analyses using polychoric correlation that factors in differences item difficulty.⁷⁴ The results, however, again showed a 6-factor solution that was similar to the first one (there were smaller numbers of items on the slightly-painful and intense-violence fantasy subscale, respectively). This finding indicates that the subscale formation was not driven by item difficulty, but by differences in content. Therefore, we decided to proceed with the initial factor solution due to its better interpretability.

In order to examine potential gender differences in the ASF-factor structure, we first replicated the factor structure resulting from the exploratory factor analysis for the total group using Confirmatory Factor Analysis ($\chi^2 = 98.842$, $df = 39$, $P < .001$; RMSEA = .048 [.036; .060]; CFI = .978; SRMR = .033; $N = 664$). Second, we examined whether we could replicate the same factor structure in both men and women via multi-group models. We compared models indicating configural (equivalent models; means constrained to be equal for model identification;

$\chi^2 = 168.920$, $df = 79$, $P < .001$; RMSEA = .059 [.046; .071]; CFI = .968; SRMR = .040; BIC = 15,178.95), weak (corresponding factor loadings constrained to be equal; means constrained to be equal for model identification; $\chi^2 = 178.655$, $df = 85$, $P < .001$; RMSEA = .058 [.046; .069]; CFI = .967; SRMR = .046; BIC = 15,175.251; $\Delta\chi^2 = 9.948$, $\Delta df = 6$, $\Delta P = .127$), strong (corresponding factor loadings and intercepts constrained to be equal; $\chi^2 = 199.341$, $df = 91$, $P < .001$; RMSEA = .060 [.049; .071]; CFI = .961; SRMR = .048; BIC = 15,159.72; $\Delta\chi^2 = 20.091$, $\Delta df = 6$, $\Delta P = .003$), and strict MI (corresponding factor loadings, intercepts, and error variances constrained to be equal; $\chi^2 = 285.360$, $df = 97$, $P < .001$; RMSEA = .076 [.066; .087]; CFI = .933; SRMR = .189; BIC = 15,306.913; $\Delta\chi^2 = 80.299$, $\Delta df = 6$, $\Delta P < .001$). Note that we fixed the second indicator of the coercion factor to 1 in all models in order for all models to converge. Significant results of the χ^2 -difference tests indicated configural measurement invariance, but inspections of fit indices, decreases in CFI smaller than .015, and decreases in BIC values indicated strong MI between men and women.

Prevalence Rates and Gender Differences

Table 2 shows the life-time-prevalence rates of the 32 items that were comprised in the 6-factor solution (see the [Supplementary Material](#) for all other items). Considering all aggression-related fantasies from the complete initial set of items, 77% of the participants reported at least one ASF at least a few times in their life (men: 89%; women: 73%). Affectionate, experimental, and slightly painful sexual fantasies were most frequently reported, followed by masochistic fantasies. Fantasies about sexual coercion and intense violence were the least frequent. Thus, the more severe the aggression-related fantasy contents, the lower the prevalence rates. The most frequent fantasy was “I fantasize or daydream about having sex with a beloved partner” (men: 98%, women: 99%); the rarest fantasy was “I fantasize or daydream about killing somebody” (men: 5%, women: < 1%).

Table 3 shows the internal consistencies, mean values, and standard deviations for all variables in our study. The sexual fantasy subscales showed acceptable to excellent internal consistencies, indicating the reliability of the measure. There was a significant multivariate main effect of gender ($F(6, 655) = 18.744$, $P < .001$, $\eta^2_p = .147$) for the MANCOVA including the sexual fantasy subscales and the ASF total score. Supporting Hypothesis 2a that suggested more overall sexual fantasies and more ASF in men than in women, men reported more frequent experimental, slightly painful, coercive, intensely violent, and total aggression-related sexual fantasies than women. Contrasting Hypothesis 2b that suggested more masochistic fantasies in women than in men, there was no gender difference in these fantasies. The second MANCOVA that included all other variables also showed a significant multivariate effect of gender ($F(15, 505) = 13.266$, $P < .001$, $\eta^2_p = .283$). Men reported

more sexually sadistic behavior, positive attitudes towards sexual fantasies, psychopathic traits, rape myth acceptance, and violent pornography consumption as well as lower conscientiousness, neuroticism, and empathy than women (Table 3).

Prediction of Aggression-Related Sexual Fantasies

We first inspected zero-order correlations between the ASF and potentially related traits and attitudes (Table 4). Contrasting Hypotheses 3a and b that suggested positive relations between the total ASF score and openness as well as extraversion, these correlations were not significant. The total ASF score was negatively correlated with agreeableness and conscientiousness, supporting Hypothesis 3c. There was an additional positive relation between the total ASF score and neuroticism. The total ASF score was also positively related with psychopathic traits, supporting Hypothesis 3d. Contrasting Hypothesis 4 that suggested negative relations between negative attitudes towards one’s sexual fantasies and the total ASF score, both were unrelated. Instead, there was a positive relation between positive attitudes towards one’s sexual fantasies and the total ASF score. When inspecting the zero-order correlations between the ASF subscales and traits and attitudes, slightly painful ASF showed the most pronounced associations with these variables, whereas intensely violent fantasies showed the least pronounced associations with these variables.

Next, we computed a regression analysis with the ASF total score as the dependent variable in order to examine which trait and attitude measures add to the prediction of ASF. Table 5 shows the results. First, we included age, gender, and the general frequency of sexual fantasies into the model. Being male and the general frequency of sexual fantasies positively predicted the ASF total score. The model explained 38.6% variance in ASF. Second, we added the Big Five, psychopathic traits, as well as positive and negative attitudes towards one’s sexual fantasies into the model. Being male, the general frequency of sexual fantasies, psychopathic traits, and negative attitudes towards one’s sexual fantasies positively predicted ASF. The model explained 42.4% variance.

Prediction of Sexually Sadistic Behavior

We first inspected zero-order correlations between the ASF and sexually sadistic behavior as well as the other pertinent risk factors for sexual aggression in our study (Table 4). There were positive correlations between all ASF subscales and the ASF total score and sexually sadistic behavior, supporting Hypothesis 5a. There were also positive relations between all ASF subscales and the total score with psychopathic traits, general aggression, and violent pornography consumption, supporting Hypothesis 5b. In addition, the coercive fantasy subscale and the total score showed positive relations with trait anger, hostility, and rape myth acceptance, also supporting Hypothesis 5b. Finally, the coercive and intense violence fantasy subscales as well as the total score showed negative relations with empathy.

Table 4. Correlations between the sexual-fantasy subscales and all other study variables for the total group

	1	2	3	4	5	6	7
1 affectionate sexual fantasies		.340***	.080*	.427***	.211***	.112**	.308***
2 experimental sexual fantasies			.406***	.473***	.387***	.250***	.462***
3 masochistic sexual fantasies				.376***	.400***	.400***	.459***
4 slightly painful sex. fantasies					.526***	.426***	.767***
5 coercive sexual fantasies						.596***	.939***
6 intensely violent fantasies							.698***
7 total aggr. Sexual fantasies							
Age	-.140**	-.008	-.005	-.062	.032	.061	.008
Aggressive sexual behavior	.154***	.300***	.475***	.544***	.579***	.575***	.659***
Positive attitudes	.287***	.443***	.228***	.282***	.173***	.067	.224***
Negative attitudes	-.187***	-.175***	.004	-.108**	.033	.041	-.010
Conscientiousness	-.052	-.128**	-.147**	-.113**	-.122**	-.079	-.132**
Extraversion	.103*	.147***	.032	.135**	-.026	.034	.034
Agreeableness	.069	-.167***	-.143**	-.088*	-.120**	-.116**	-.128**
Openness	.144**	.170***	.056	.109**	.055	.044	.081
Neuroticism	-.028	-.105*	-.023	-.102*	-.070	-.082	-.094*
Psychopathic traits	.099*	.345***	.212***	.310***	.290***	.255***	.338***
General aggression	.087*	.252***	.159***	.239***	.294***	.219***	.311***
Trait anger	-0.25	.095*	.128**	.074	.091*	.033	.091*
Hostility	.097*	.059	.082	.082	.092*	.009	.090*
Empathy	.149**	.020	.041	-.026	-.088*	-.128**	-.087*
Rape myth acceptance	.041	.107*	-.038	.035	.167***	.032	.128**
Violent pornogr. consumption	.110*	.349**	.453***	.337***	.484***	.279***	.480***

minimal N = 538.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

Next, we computed a stepwise hierarchical regression analysis that predicted sexually sadistic behavior from the ASF and the control variables. Table 6 shows the results. First, we entered age and gender into the model. Being male predicted more sexually sadistic behavior. The model explained 3.5% variance. Second, we entered general aggression, trait anger, hostility, psychopathic traits, empathy, rape myths acceptance, and violent pornography consumption into the model. General aggression, psychopathic traits, violent pornography consumption positively predicted, and rape myth acceptance negatively predicted sexually sadistic behavior. The model explained 26.3% variance. Finally, we added the total ASF score into the model. The ASF total score significantly added to the prediction of sexual sadism, also above and beyond the other risk factors, supporting Hypotheses 6a and b. In addition, the ASF total score was the strongest predictor and the amount of explained variance increased to 48.8%. When the three ASF subscales were separately entered into the model, the pattern of results remained the same and all three subscales significantly added to the prediction of sexually sadistic behavior.

In order to take into account that sexually sadistic behavior can consensually be put into action, we re-ran the regression analyses with a more specific outcome measure. To this end, we calculated an additional composite score from only three items of the sexually sadistic behavior scale that presumably reflect non-

consensual sexual behavior even among individuals with an interest in sadomasochistic acts (ie, one item about playing with death and two items about scaring someone). Again, the total ASF score was the strongest predictor of this presumably non-consensual sexually sadistic behavior above and beyond all other variables ($\beta = .481$, $P < .001$). When separately entering the three ASF subscales into the model, only the coercion ($\beta = .240$, $P < .001$) and intense violence ($\beta = .375$, $P < .001$) subscales added to the prediction of the presumably non-consensual sexually sadistic behavior.

DISCUSSION

The present study examined aggression-related sexual fantasies (ASF) with a large number of items that covered a broad spectrum of aggression-related sexual behavior (including acts that may be interpreted as signs of compassion, such as scratching the partner's back; verbal aggression; or intensely aggressive acts, such as killing a sexual partner). It did so in a general-population sample with a large proportion of women. The overall lifetime prevalence rate of the ASF was high (77%), but prevalence rates for single fantasies decreased with increasing levels of the severity of the aggression in the fantasized acts. Men reported more frequent ASF than women on item, subscale, and total-

Table 5. Prediction of aggression-related sexual fantasies (N = 547)

	Model 1				Model 2			
	B	SE B	β	95% CI	B	SE B	β	95% CI
Gender	0.148	0.023	.218***	[0.103, 0.193]	0.128	0.025	.189***	[0.080, 0.177]
Age	0.004	0.003	.037	0.011]	0.006	0.003	.055	[-0.001, 0.013]
SF frequency	0.047	0.003	.561***	[0.041, 0.052]	0.047	0.003	.565***	[0.041, 0.053]
Positive attitudes					-0.044	0.037	-.052	[-0.117, 0.028]
Negative attitudes					0.083	0.034	.092*	[0.017, 0.150]
Conscientiousness					0.016	0.019	.029	[-0.021, 0.052]
Extraversion					-0.011	0.017	-.024	[-0.044, 0.022]
Agreeableness					-0.017	0.022	-.029	[-0.061, 0.026]
Openness					-0.002	0.023	-.003	[-0.048, 0.044]
Neuroticism					-0.017	0.017	-.036	[-0.050, 0.017]
Psychopathic Traits					0.150	0.037	.153***	[0.077, 0.223]
R ²	.386				.424			
F change in R ²	113.902***				4.323***			

SF = sexual fantasy

*P < .05.

***P < .001.

score level. Exploratory factor analysis revealed six positively related sexual-fantasy subscales including three distinct factors of ASF. These three factors reflected increasing levels of severity of the fantasized aggressive acts (slightly painful, coercive, and intensely violent fantasies) as well as differences in the consensuality or non-consensuality of these acts. The factor structure was similar for women and men. Higher psychopathic traits and negative attitudes towards one’s sexual fantasies were positively associated with the total ASF score in regression analysis. Most importantly, ASF showed the strongest associations with sexually sadistic behavior above and beyond a large number of other pertinent risk factors, supporting the notion that ASF may be an important risk factor for sexual aggression.

Factor Structure

The six fantasy subscales that emerged from the exploratory factor analysis were similar to previous findings in North American samples by reflecting positively correlated fantasy subscales

of affectionate, experimental, masochistic, and aggression-related acts.^{14–17} These findings confirm that sexual fantasies are a multidimensional construct. High internal consistencies of the subscales, a clear factor structure that could be replicated with different statistical approaches and that applied to both women and men, as well as expected subscale correlations indicate that ASF and other sexual fantasies can reliably and validly be assessed with the help of the present measure.

Importantly, the present study added to the existing literature on sexual fantasies by carving out the internal structure of ASF in more detail. A large number of items and a broad spectrum of imagined aggression-related acts allowed us to show that ASF themselves are not a homogeneous construct. Instead, our analysis revealed subscales that differed, first, with regard to the severity of aggression, pain, or harm potentially resulting from the imagined acts and, second, with regard to the consensuality or non-consensuality of these acts. More precisely, slightly painful fantasies may not necessarily be hurtful even when put into

Table 6. Prediction of aggressive sexual behavior by aggression-related sexual fantasies and control variables (N = 538)

	Model 1				Model 2				Model 3			
	B	SE B	β	95% CI	B	SE B	β	95% CI	B	SE B	β	95% CI
Gender	0.081	0.018	.187***	[0.045, 0.118]	0.015	0.018	.034	[-0.020, 0.050]	-0.012	0.015	-.028	[-0.042, 0.017]
Age	0.000	0.003	.004	[-0.005, 0.006]	-0.001	0.002	-.015	[-0.006, 0.004]	-0.001	0.002	-.021	[-0.005, 0.003]
General Aggression					0.124	0.043	.154**	[0.040, 0.207]	0.059	0.036	.073	[-0.011, 0.129]
Trait Anger					-0.029	0.022	-.063	[-0.072, 0.007]	-0.025	0.018	-.054	[-0.061, 0.011]
Hostility					-0.038	0.027	-.073	[-0.092, 0.015]	-0.019	0.023	-.037	[-0.064, 0.025]
Psychopathic Traits					0.105	0.028	.167***	[0.049, 0.161]	0.052	0.024	.083	[0.005, .099]
Empathy					-0.009	0.034	-.011	[-0.076, 0.057]	0.010	0.028	.011	[-0.046, 0.065]
Rape Myths Acceptance					-0.071	0.026	-.112**	[-0.122, -0.020]	-0.065	0.022	-.103**	[-0.108, -0.022]
Violent Pornography					0.195	0.021	.383***	[0.155, 0.236]	0.087	0.019	.170***	[0.050, 0.123]
Aggressive Sexual Fantasies									0.361	0.024	.566***	[0.315, 0.408]
R ²	.035				.263				.488			
F change in R ²	9.704***				23.316***				231.228***			

**P < .01.

***P < .001.

action. Hence, they may also be consensually put into action by individuals that do not have an interest in dominance and/or pain in sexual encounters. Thus, this subscale reflects low levels of severity and presumably the consensuality of the imagined acts. In contrast, the coercive fantasies subscale clearly suggests acts against the sexual partners' will, irrespective of these partners' sexual interests. In addition, this subscale mainly comprises acts with a medium severity of aggression and potentially resulting harm. Fantasies of intense violence reflected a high severity of the aggressive acts. It remains unclear, however, whether these fantasies are imagined by the subject to be consensually or non-consensually put into action.

The notion that the three ASF subscales reflect different aspects of ASF is backed up by the finding that they independently added to the prediction of sexually sadistic behavior—despite their high inter-relations and similar correlation patterns with third variables (note, however, the positive relation between the coercion subscale and rape myths acceptance only). Hence, the different subscales may be differentially suited to predict different forms of sexual aggression in future research.

Thus, the present findings add to the ongoing debate about whether ASF need to be further differentiated.^{5,8,9} They support the distinction between fantasies referring to rape and coercion, that is, acts against the sexual partner's will (the coercion subscale) and fantasies referring to the infliction of pain and suffering that may or may not be consensually put into action (the slightly-painful and intense-violence subscales^{34,35}). The three subscales also correspond with the components of the “agonistic continuum”. This concept delineates the idea that non-coercive fantasies, sexual coercive fantasies, fantasies related to consensual sexual sadism, and fantasies about non-consensual sexual sadism are part of the same spectrum.^{31–33} The present findings are of particular interest, because most previous research on this continuum of fantasies used male and sex offender samples. The present findings suggest its generalizability to general-population samples and women.

Prevalence Rates and Gender Differences

The present study supports previous research showing that ASF are frequent even in general-population samples²¹ and in both men and women. Presumably due to the broad spectrum of potentially aggression-related sexual fantasies and the large number of items in our study, life-time prevalence rates in the present study exceeded those in previous studies that used fewer items which tended to reflect rather severe acts of inflicting pain and harm.^{19–21,25–29} In line with this reasoning, in the present study, there was an inverse relation between the severity of the imagined acts and the reported frequency of the accordant fantasies. The most frequent fantasies reflected aggressive acts with a low severity (eg, insulting the partner), acts that do not necessarily cause harm (eg, talking somebody into sexual actions), or acts that may be (perceived as) an expression of pleasure by the actor and/or the partner (eg, scratching the partner's back).

Nonetheless, a substantial proportion of both men and women also reported to fantasize about acts that would clearly be against the partner's will (eg, ignoring protest against sexual acts, 37% and 16%; forcing someone into sex or other sexual acts, 27% and 10%) and/or that would include intense violence (up to 18% and 5%). Still, ASF were less frequent than affectionate, experimental, and masochistic fantasies.

Regarding the inspection of gender differences, so far, empirical comparisons between men and women were sparse.^{21,24} The present study, therefore, contributed to the existing knowledge by testing gender differences in (aggression-related) sexual fantasies using inference statistics. It confirmed a stronger tendency towards sexual fantasy in general and ASF in particular in men than women.^{14–18} However, apart from mean-level differences, the factor structure of all fantasy subscales is apparently equal between men and women.

Prediction of Aggression-Related Sexual Fantasies

Considering the correlations between ASF and traits and attitudes in the present study, we were only partially able to confirm our initial hypotheses. Most noteworthy were the consistent positive relations between all ASF scales and psychopathic traits and positive attitudes towards one's fantasies as well as consistent negative relations with agreeableness (and conscientiousness). Most other hypotheses were only supported specifically for slightly-painful fantasies. Hence, the present results add to the mixed findings on the links between ASF or sadistic fantasies and the Big Five,^{28,39,40} but are in line with previous research that positively related psychopathy and ASF or sadistic fantasies.^{28,38} Hence, psychopathy as a rather specific trait seems more closely related to ASF than broad personality dimensions, such as the Big Five.³⁶ Hence, these narrower and more specific traits should be considered by future research on ASF. For example, it might be examined which overlaps ASF and psychopathic traits show and whether they have similar origins.

Findings concerning the attitudes towards one's sexual fantasies were inconsistent and partially contradicted previous research that showed negative relations between negative attitudes towards sexual fantasies and sexual fantasies.^{23,41,42} In the present study, zero-order correlations mainly suggested no relations between these negative attitudes and the ASF scales, whereas regression analyses showed positive relations. Similarly, zero-order correlations suggested consistent positive links between the ASF scales and positive attitudes towards one's sexual fantasies, suggesting that these positive attitudes may promote an openness to sexual fantasies in general, even about more extraordinary acts. However, this relation was not retained in the regression analysis. Thus, as suggested by previous research,^{44,48,75} relations between attitudes towards sexual fantasies and ASF may be complex. Future research, therefore, may want to investigate these relations in more detail and to also consider two separate dimensions of attitudes towards one's sexual fantasies. In addition, further cognitive variables that are related to aggression and are similar to

attitudes, such as sexual interests or hostility towards women,^{4,5,11,12} should be considered as potential correlates and predictors of ASF by future research.

Prediction of Sexually Sadistic Behavior

One of the main questions of the present research was whether ASF would be related with aggressive sexual behavior and whether they would predict this behavior above and beyond other pertinent risk factors. Our findings support the assumption that ASF are closely associated with sexual aggression even in general-population samples and in both men and women. Furthermore, ASF was the strongest predictor of sexually sadistic behavior, even when controlling for a number of other pertinent risk factors. In addition, the finding held stable when separately considering the three ASF subscales. Even the slightly-painful fantasies subscale that contains items on acts that may not necessarily result in pain or can consensually be put into action, added to the prediction of sexually sadistic behavior. This, however, was only the case, if items that reflect potentially consensual acts were considered in the outcome measure. Hence, the different ASF subscales may be differentially fit to predict different aspects of sexual aggression (see above).^{34,35} Therefore, they may provide a starting point for the prevention of accordant behavior.

Due to the large proportion of women in our sample, we were able to inspect potential gender differences in the associations between ASF and sexually aggressive behavior. A similar fantasy-factor structure between women and men and the non-significant effect of gender in the regression analysis indicate that despite the significant mean-level differences, the associations between ASF and sexual aggression may be comparable between men and women. Future research should replicate these findings in independent samples.

Limitations and Outlook

The strengths of the present study include the large sample size with a large proportion of women and considering fantasies about a broad spectrum of aggression-related sexual acts as well as a large number of potential correlates of ASF. Limitations include the cross-sectional data that prevent us from drawing causal inferences. ASF may not only promote sexual aggression, but may also result from it: for example, reliving past sexual experiences may inform and trigger future fantasies. We assessed psychopathic traits only via two presumably relevant facets and 10 items of the Youth Psychopathy Inventory that is originally designed for participants between 12 and 25 years of age. The present ASF measure distinguished between fantasies about clearly non-consensual sexual acts and acts that may or may not be consensually put into action. It, however, did not capture whether the fantasized acts were consensually or non-consensually put into action from the receiving party's perspective for all single items^{76,77} and whether either the use of force and/or a consensual infliction of harm was sexually arousing from the

inflictor's perspective. Similarly, the outcome measure reflected sexually sadistic behavior and presumably non-consensual sexually sadistic behavior, but it remains unclear whether the reported acts were consensually or non-consensually put into action. We used a student-based sample. Although controlling for employment status did not change the pattern of results, the present findings should be replicated in a more representative sample in order to secure the generalizability of findings that may be limited in the present study. Finally, we used the same sample to test gender differences via Confirmatory Factor Analysis as in the initial Exploratory Factor Analysis.

Future research, therefore, should use longitudinal data to replicate the present findings and to clarify the role of ASF for sexual aggression. It should consider whether the imagined acts are consensually or non-consensually put into action and examine the potentially differential meanings, contents, and correlates of the ASF subscales in more detail. It should use different outcome measures of sexual aggression and control for further risk factors, such as substance use, experiences of sexual coercion, sexual preference, and BDSM affiliation.^{4,78} Particularly, it should use a more comprehensive measure of psychopathy that would allow to identify the aspects of psychopathy that may specifically underly or explain its links with ASF. For example, previous research showed the antisocial and impulsive behavior facets of psychopathy to be important predictors of sexual aggression.^{11,12} Finally, the factor structure should be replicated in an independent sample.

The present study used a comprehensive measure of aggression-related sexual fantasies and provided further evidence for the assumption that ASF may strongly be associated with sexual aggression. These findings indicate that ASF deserve more attention by research on sexual aggression. Future research may show, whether and how ASF may be manageable in order to inform effective prevention and intervention measures or whether they may solely function as a predictor for future behavior.

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STATEMENT OF AUTHORSHIP

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SUPPLEMENTARY MATERIALS

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