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Paraphilic Interests: The Role of Psychosocial Factors in a Sample of Young Adults in Hong Kong

Heng Choon (Oliver) Chan¹

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Abstract

Background Little is known about the prevalence and nature of paraphilic interests in the Hong Kong young adult population. This study explores the psychosocial factors associated with paraphilic interests.

Methods Testing the propositions of several criminological theories (i.e., the theories of self-control, general strain, social learning, social control, and routine activity), the study recruited 1171 participants (18–40 years old), from September 2018 through April 2020, to examine both general and 14 subtypes of paraphilic interest (i.e., voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, masochism, biastophilia, urophilia, scatophilia, hebephilia, pedophilia, and zoophilia).

Results The findings indicate that males reported significantly higher levels of general and 12 subtypes of paraphilic interest than females, while females had a higher level of transvestic fetishism than males. No mean difference is found between males and females in interest in masochism. Relative to females, males reported significantly higher levels of negative temperament, alcohol and drug use, and risky sexual behavior, whereas females had higher levels of self-control, social bonds, and perceived neighborhood disorganization than males. Multivariate analyses indicate that in general, high levels of negative temperament, alcohol and drug use, risky sexual behavior, and perceived neighborhood disorganization and low levels of self-control and social bonds were important factors associated with the participants' likelihood of having general and 14 subtypes of paraphilic interest.

Conclusions These findings provide support to the significant role of psychosocial factors in understanding different paraphilic interests in the Hong Kong young adult population.

Policy Implications This study has implications for practice, in the form of reducing, if not eliminating, the tendency to develop an interest in paraphilic behaviors. This may be more important when referring to paraphilic behaviors that are criminally oriented.

Keywords Paraphilic interest · Paraphilic behavior · Paraphilia · Psychosocial factor · Young adult

Introduction

Paraphilias can be broadly defined as conditions characterized by persistent unconventional sexual interests. Clinically, a paraphilia has been defined as an “intense and persistent sexual interest other than sexual interest in genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human

partners” (American Psychiatric Association, 2013). Paraphilic sexual interest is regarded as sexual arousal from an atypical sexual activity (e.g., exposing one's genitals to nonconsenting others) or target (e.g., prepubescent children) (Bouchard, Dawson, & Lalumière, 2017). However, it should be stressed that having or acting on a paraphilic interest may not necessarily be pathological. Most people with paraphilic interests do not have a mental disorder, and paraphilia is only clinically diagnosed when the paraphilic interest is recurrent, persistent, necessary for sexual enjoyment, and results in significant distress or impairment of functioning. Nevertheless, some studies found a significant positive relationship between antisociality (e.g., antisocial personality disorder, conduct disorder) and paraphilic

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interests and behavior, particularly in the criminal population (DeLisi, Drury, Caropreso, Heinrichs, Tahja, & Elbert, 2018; Lee, Hanson, Calkins, & Jeglic, 2020). The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) identifies eight paraphilias and their associated paraphilic disorders (i.e., voyeurism, exhibitionism, fetishism, transvestic fetishism, frotteurism, sexual sadism, sexual masochism, and pedophilia; APA, 2013), while the International Classification of Diseases, Tenth Revision (ICD-10) recognizes six disorders of sexual preference (i.e., voyeurism, exhibitionism, fetishism, fetishistic transvestism, sadomasochism, and pedophilia; World Health Organization, 2010). Other paraphilias are classified in DSM-5 in the residual diagnosis category of paraphilia (e.g., scatologia, biastophilia, urophilia, scatophilia, hebephilia, and zoophilia).

Given the flexibility of sexual norms across time and cultural practices, the DSM-5 has distinguished paraphilias from paraphilic disorders, with the former is regarded as atypical but not inherently pathological behaviors. Paraphilic disorders, in contrast, are regarded as the presence of deviant, maladaptive erotic urges, which may result in a significant threat to the psychological and physical well-being of the affected individuals and/or others. Indeed, the diagnosis of paraphilic disorders requires that (1) the patient experiences personal distress over persistent (at least 6 months) and troubling sexual fantasies, urges, or behaviors (and not simply from society's disapproval), and that (2) such behaviors cause distress, injury, or death of another individuals, or involve nonconsenting individuals or those who are unable to provide legal consent (American Psychiatric Association, 2013).

However, sexual fantasies should not be confused with sexual interests. Joyal and colleagues (2015) found in their nonclinical samples that self-reported sexual fantasies were regarded as the mere presence of a paraphilic sexual fantasy that may not essentially indicative of a paraphilic interest. In fact, many participants in their study who reported submissive or rape fantasies stated that they would never want to have such experiences. Furthermore, numerous studies of nonclinical samples have demonstrated that the interest in and practice of paraphilic behavior (e.g., nonoffending paraphilic interests) may merely use to enhance the overall sexual satisfaction with their partner (Joyal, 2014; Khar, 2008; Leitenberg & Henning, 1995). A recent study by Mundy and Cioe (2019) found in their nonclinical sample that those who have a paraphilic interest and have disclosed to their partner have higher levels of sexual satisfaction than those who have not revealed their paraphilic interest to their partner of who do not have a stable partner. Hence, Critelli and Bivona (2008) argued that suggesting an individual of having sexual interests or fantasies related to an illegal and paraphilic act (e.g.,

biastophilia, pedophilia) is at a higher risk for criminality is inaccurate as it may not necessarily the case.

Culture and society are also found to have a significant impact on the recognition and acceptance of behavior as normal or deviance. Sexual practices, in general, are associated with the societal kinship structures and power gradients, which often follow prescribed and shared cultural scripts that promote or discourage different types of sexual interests and behavior (Reiss, 1986). Specifically, Bullough (1976) described cultures and societies as either sex-positive (i.e., emphasizes the pleasurable, gratifying, rewarding, and non-reproductive aspects of sex) or sex-negative (i.e., perceives semen loss and sexual intercourse as a weakness and sexual asceticism is encouraged). Nevertheless, as societies have evolved, changed, and imbibed new customs, the attitudes and values regarding sexual interests, activity, and overall sexuality have also changed accordingly (Ayonrinde & Bhugra, 2015).

Relative to the Western cultures, Asian and Middle Eastern cultures commonly adopt a higher restrictive view on sexual issues. In these cultures, discussion on sex has always been and remains a taboo subject (Baazeem, 2016; Ho, Singam, Hong, & Zainuddin, 2011). Thus, it is reasonable to perceive that cultural factors may influence an individual's expression of distress as a result of his/her sexual dysfunction. For instance, Chinese males may feel embarrassed to discuss erectile dysfunction and choose to suffer in silence (Ho et al., 2011). Indeed, complaints of ejaculatory delay are more common in Asian populations when compared to those from the Europe, Australia, and the USA (Kalra, Tandon, & Rao, 2014). Concerning the treatment of sexual disorders and specifically for paraphilic interests and behavior, the review by Kalra and colleagues (2014) observed that Asian patients are more likely to feel uncomfortable consulting health-care professionals regarding their sexual problems. These patients are often feel anxious and unwilling to discuss their sexual (dys)functioning with the practitioners. Tamatea and colleagues (2011) argued that the cultural aspect seems to be a major barrier across processes of assessment, treatment, and reintegration with individuals with sexual problems. Therefore, it is reasonable to posit that compare to the Western populations, Eastern populations particularly the Asians may less likely to possess atypical or paraphilic interests in view of the sexual conservatism within their cultural background. Even if they do, Asians are less likely to openly admit their paraphilic interests and behavior compare to their Western counterparts. Such assertions have been found supportive in past cross-cultural studies (e.g., Abramson & Imai-Marquez, 1982; Dang, Gorzalka, & Brotto, 2019; Meston, Trapnell, & Gorzalka, 1996).

Interestingly, most empirical studies of paraphilias or paraphilic disorders have primarily involved samples recruited in clinical or forensic settings (e.g., Behrendt, Buhl, & Seidl, 2002; Kafka & Hennen, 2002; Marsh et al., 2010); little is known about the prevalence and nature of paraphilic interests and behavior in the general population, particularly from the Eastern hemisphere. Given that acting on some paraphilic interests (e.g., biastophilia, sexual sadism, pedophilia, frotteurism, and zoophilia) can violate laws or social norms, more research on the nonclinical population is desirable. Notably, recent research has found that paraphilic interests may be far more common than presumed (Ahlers, Schaefer, Mundt, Roll, Englert, Willich, & Beier, 2011; Dawson, Bannerman, & Lalumière, 2016) and that offender and nonoffender populations may be comparable (Williams, Cooper, Howell, Yuille, & Paulhus, 2009). Ahlers and colleagues (2011) found that 64% of male participants from a German community reported at least one paraphilic interest, with the most frequent being voyeurism (35%), fetishism (30%), and sadism (22%); they also found that paraphilic fantasies (59%) were more commonly reported than paraphilic behaviors (44%). Similarly, Joyal and Carpentier (2017) noted that nearly half of their sample of 1040 Canadian adults (46%) acknowledged an interest in at least one paraphilic behavior, and about 34% had engaged in a paraphilic behavior at least once in their lives, with voyeurism (46%) and fetishism (45%) being the most common. In Baur and colleagues' (2016) study of 5990 18 to 33-year-old twins from a Finnish population cohort, 18% of the sample reported having at least one paraphilic interest or behavior, with voyeurism (11%) and sexual masochism (7%) being the most common.

Understanding paraphilic interests in a general population remains an important area not only from a public health perspective but also from a criminal justice standpoint. For instance, having an interest in paraphilic behavior that is illegal in nature (e.g., biastophilia [rape] or pedophilia [sex with underage children]) may pose a serious threat to the public. Besides, problematic sexual interests and behavior are associated with a number of harmful consequences, including heightened risk of sexually transmitted infections (Yoon, Houang, Hirschfield, & Downing, 2016), interpersonal problems (Winder, Fedoroff, Grubin, Klapilová, Kamenskov, Tucker, et al., 2019), physical injuries (Carnes, 1991), and sexual (re)offending behavior (Chan, 2020a; Hanson & Morton-Bourgon, 2005). In view of the potential high risk of adverse public health outcomes, it is worthwhile to understand this phenomenon in Hong Kong, especially the factors associated with paraphilic interests, to effectively identify and intervene in a

timely manner on behalf of those who are at greatest risk for such outcomes. By providing an assessment of the psychosocial factors of paraphilia through the lens of criminology, the findings of this study add to our knowledge in this area and contribute to the literature.

Theoretical Background

The relationship between low self-control and deviant sexual interests (e.g., paraphilic interests) has been noted in the literature. According to Gottfredson and Hirschi (1990), self-control theory (a.k.a. the general theory of crime) postulates that individuals with low self-control are more likely to engage in deviant and offending behavior in search of immediate gratification without considering the potential consequences. Muraven and colleagues (2006) asserted that low-self-control individuals often manifest six key characteristics: they are impulsive, self-centered, short-tempered, and risk-seekers, and they prefer simple over complex tasks and physical over mental activities. The developmental background of these individuals is characterized by early criminogenic exposure that did not allow them to develop sufficient control over their behavior. This personality trait, formed between the ages of 6 and 10, has been argued to be remain extremely stable over the rest of one's life (Hirschi & Gottfredson, 1994), regardless of demographic characteristics such as age, gender, culture, and social class). Empirical research has indicated that most deviant sexual interests and behaviors (e.g., sexual exposure [exhibitionism], cross-dressing [transvestic fetishism]) are often characterized by the same underlying characteristics: poor impulse control, the need for immediate gratification, risk and sensation seeking, self-centeredness, and inability to see the long-term consequences of current actions (i.e., low self-control; Love, 2006). Specifically, Love (2006) found that low self-control was predictive of likelihood of involvement in illicit or deviant sexual behavior and crime. In addition, the literature has documented positive relationships between traits of low self-control and more violent types of deviant sexual behavior (e.g., sexual aggression, sexual homicide) (Ha & Beauregard, 2016; Healey & Beauregard, 2016). Sexual offenders lower in self-control have been reported to exhibit behaviors that were impulsive, risky, insensitive, short-sighted, physical, and aggressive. However, DeLisi and Wright (2014) claimed that the relationship between low self-control and sexual homicide may be curvilinear: sexual murderers who are low in self-control may be more disorganized in the nature of their offense, while those high in self-control may appear to be more organized.

Agnew's (2002) general strain theory hypothesizes that individuals who are experiencing strain (e.g., stressors) may interact with their individual characteristics to intensify the risk of engaging in maladaptive behaviors, including deviant or paraphilic activities. These negative coping strategies are often used in response to adverse events, treatment, or conditions. Agnew (1992) posited that negative emotions (e.g., frustration, rejection, ridicule, isolation, depression, and anger) are typically stimuli for action that elicits a progression from strain to deviant behavior (e.g., paraphilic interests and activities). Thus, exposure to these strains may generate negative emotions that demand corrective action (Agnew, Brezina, Wright, & Cullen, 2002). Such corrective action aims to restore an individual's emotional equilibrium (i.e., positive emotions, such as excitement, control, and satisfaction). Paraphilic interests and subsequent behaviors may bestow a powerful sense of positive emotions, which may become habitual and dominate an individual's social and interpersonal relationships (Hickey, 2002; Yakeley & Wood, 2014). Levine and colleagues (1990) argued that paraphilias are a form of defense against dysphoric feelings (e.g., strains), in which paraphilic interests and activities are regarded as a form of retreat from unwanted emotions such as anxiety and sadness.

The behavioral learning approach, as exemplified by Sutherland's (1947) differential association theory and Akers's (1985) social learning theory, theorizes that deviant and criminal behavior is learned through close social interaction with family and peers in the forms of reinforcement and reward or punishment. Differential reinforcement or punishment generally refers to the net balance of anticipated social and/or nonsocial rewards and costs related to different behaviors (Akers, 1997). For instance, social reinforcement involves "not just the direct reactions of others present while an act is performed, but also the whole range of tangible and intangible rewards valued in society and its subgroups" (Akers, 1997, p. 55), such as positive facial expressions, verbal approval from significant others, and financial rewards. In contrast, nonsocial reinforcements are "unconditioned positive and negative effects of physiological and psychological stimuli" (Akers, 1998, p. 71), such as the psychophysiological effects of a stimulant. Bandura (1973) asserted that similar to other attitudes and behavior, deviant and criminal behavior is learned from role models, as the imitation of observed behavior is a key behavioral learning process. The likelihood that an individual will learn an observed behavior increases when he/she expects incentives. Nevertheless, the effect of such exposure varies widely according to the frequency, duration, intensity, and priority of different associations (Akers, 1998). Chan (2015) and Chan and colleagues (2011) suggested that childhood and/or adolescent experiences of physical and/or sexual abuse or

of witnessing domestic violence predisposed an individual to subsequent adverse consequences (e.g., sexual deviant and criminal behavior). Although primary social groups (e.g., family and peers) are likely to have a strong influence on the behavioral learning process, Warr (2002) asserted that secondary and reference groups (e.g., the school system, colleagues and work groups, mass media, the Internet, and computer and mobile games) can be equally pertinent to normative definitions (e.g., values, norms, beliefs, and attitudes) in the learning process. According to Arrigo and Purcell (2001), individuals who engage in paraphilic fantasies or have a strong interest in paraphilic activities are compelled to actualize their fantasies, and they experience an exhilarating rush of carnal satisfaction and an increased need for stimulation every time the behavior is initiated. This paraphilic behavior may function as a reinforcer through classical conditioning and cycle back into their fantasy system, resulting in behavioral escalation and habituation. The use of alcohol and drugs has been found to function as a facilitator, exacerbating paraphilic interests and behavioral manifestations (Hickey, 2002). A strong dependency on alcohol and drugs is likely to escalate until the individual becomes desensitized to the facilitator.

Similarly, positive relationships between risky sexual behavior and paraphilic interests and activities have been reported in the literature. Consistent with a number of theories of sexual offending, Lalumière and colleagues (2005) postulated that an individual's paraphilic interests and behavior are likely to be influenced by their degree of impulsivity or likelihood of engaging in sexual and nonsexual risky behavior. Several other studies have also reported that risk-taking and impulsivity play significant roles in the expression of paraphilic interests and activities (e.g., Kafka, 1997, 2001; Långström & Seto, 2006; Marshall, 2007). Low levels of general inhibition, consequent to greater degrees of risk-seeking and impulsivity, are likely to facilitate the development of atypical sexual interests (e.g., paraphilic interests; Dawson et al., 2016). Kafka (2001) stated that a high sex drive and a strong preference for novelty may precede or contribute to the development of paraphilic interests, whereby some individuals become habituated to conventional sexual partners and activities. Empirical studies have found that individuals diagnosed with paraphilias are more likely to report more risky sexual behaviors, such as a high number of sexual partners, high rates of sexual behavior, and strong sexual appetites and preoccupations (Chan, 2019a; Kafka, 2009; Kafka & Hennen, 2003; Långström & Hanson, 2006). Hence, the development of paraphilic interests may be associated with the individual's risk-taking and impulsivity tendencies.

Social control theory, developed by Hirschi (1969), postulates that deviance or crime occurs as a result of weak social bonds with conventional society (e.g., parents,

prosocial peers, and school). Individuals with stronger social bonds are less likely to engage in deviant or criminal activities, including deviant sexual activities (e.g., paraphilic activities). This theory includes four core social bond elements: (1) attachment, (2) commitment, (3) involvement, and (4) belief. Attachment is generally defined as emotional or affective ties to parents, peers, and school. Commitment refers to an individual's investment in prosocial behavior, including a willingness to do what is promised and respect for the expectations of others regarding fulfilling one's promises. Involvement refers to active participation in prosocial activities (e.g., sports, religious practices, and community services). Belief is defined as recognition of the moral validity of societal regulations and norms. These four social bond elements are strongly correlated, and their combined effect may be stronger than their individual effects (Hirschi, 1969). Laundra and colleagues (2002) suggested that attachment and commitment to prosocial individuals and activities may increase an individual's morality belief, which may reduce their propensity to engage in deviant and criminal behavior. Bogaerts and colleagues (2006) found that weaker parental ties were generally noted in a group of exhibitionists compared with nonexhibitionists. Some sexual offending theories posit that feelings of inadequacy, the outcome of a lack of social bonding with prosocial others (i.e., parental bonding during childhood and adolescence), may encourage an individual to retreat into a world of fantasy and social isolation (Burgess, Hartman, Ressler, Douglas, & McCormack, 1986; Hickey, 2002). Over time, fantasies may become more erotic and violent through the incorporation of paraphilic fetishes, rituals, and/or unusual and sexually charged objects as stimuli for sexual gratification.

Individuals' routine activities and lifestyle choices, as situational mechanisms, have also been frequently used to explain deviant and criminal behavior, including deviant sexual interests and behavior. Cohen and Felson (1979) argued in their routine activity theory that the likelihood of a crime's occurring is generally influenced by the convergence in time and space of three key features in the daily routines of the individuals involved: (1) a motivated or potential offender, (2) an attractive or suitable target, and (3) an ineffective or absent guardian to protect against a violation. It should be noted that the lack of any of these features reduces the likelihood of a potential crime (Felson & Cohen, 1980). Although this theory was initially developed to explain victimization as an outcome of legitimate and routine daily activities that expose poorly guarded targets to potential offenders in close proximity, it was later extended to describe deviant and offending behavior. Put simply, an individual's probability of developing sexually deviant interests (e.g., paraphilic interests) and of subsequently engaging in deviant and criminal behavior is generally associated with their specific

daily activities (e.g., deviant peer association), lifestyle (e.g., criminogenic living environment), and status (e.g., personal characteristics). For example, young people who spend considerable time in "unstructured socializing" with deviant peers and without adult supervision are likely to be at a heightened risk of engaging in deviant and criminal activities (Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996). Tangible and intangible rewards (e.g., reputation or status within a group) may also encourage initial and persistent participation in deviant and criminal activities (e.g., group sexual deviant and offending behavior; t Hart-Kerkhoffs, Vermeiren, Jansen, & Doreleijers, 2011). Some paraphilic activities are commonly performed in a group setting (e.g., group voyeurism, exhibitionism, and transvestic fetishism). Furthermore, criminogenic environments (e.g., domestic and community criminogenic exposures) have been consistently reported to be correlated with deviant sexual and nonsexual interests and offending behavior (Chan, Lo, Zhong & Chui, 2015a, b; Hewitt & Beauregard, 2014).

The Present Study

Based on the literature, the importance of this study is threefold. It is arguably the first empirical study to explore the prevalence of the paraphilic interests of a large group of young male and female adults in Hong Kong. This exploratory study examines the psychosocial factors associated with general and subtypes of paraphilic interest through tests of several mainstream theoretical principles and concepts. It also explores the sex distribution of general and different subtypes of paraphilic interest. This study focuses on the applicability of these theoretical constructs to explaining the paraphilic interests of a sample of Chinese young adults. It is noteworthy that a recent study by Bartova and colleagues (2020) indicated a significantly positive association between paraphilic interests and subsequent paraphilic behavior. It was argued that the high prevalence in some paraphilic interests and patterns might render their pathologization problematic in subsequent behavioral manifestation. Carvalho (2018) asserted that paraphilic sexual interests can be considered, to a certain extent, a motivational factor in some sexual offenses (e.g., biastophilia, pedophilia, and sadism). Hence, it is important that the findings of this study can inform practice (e.g., preventive measures) through the identification of significant psychosocial factors for different types of paraphilic interest. Well-timed strategic interventions can reduce young adults' likelihood of engaging in paraphilic activities, which may run a risk in progressing to more criminally-oriented paraphilic activities (e.g., pedophilia,

biastophilia). The following research hypotheses are proposed for this study.

Hypothesis 1: There are sex differences in the mean levels of various types of paraphilic interest (i.e., general, voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, masochism, biastophilia, urophilia, scatophilia, hebephiliac, pedophilia, and zoophilia) and psychosocial factors (i.e., self-control, negative temperament, alcohol and drug use, risky sexual behavior, social bonds, and perceived neighborhood disorganization).

Hypothesis 2: Psychosocial factors are associated with different types of paraphilic interest, even when controlling for the young adults' demographic characteristics (i.e., age, sex, religiosity, and marital status), such that low levels of self-control and social bonds and high levels of negative temperament, alcohol and drug use, risky sexual behavior, and perceived neighborhood disorganization are associated with all types of paraphilic interest.

Methods

Participants and Procedure

In this study, 1171 participants aged at least 18 years were recruited from eight public (i.e., government-funded) and two private universities in Hong Kong. Participants were approached randomly within university compounds (e.g., student cafeterias, reading corners, libraries, and common areas) with no preset time period (i.e., about 2 years), from September 2018 through April 2020. Ethical approval was

obtained from the university's institutional review board. The participants' informed consent was obtained before copies of the paper-based questionnaire were administered. They completed the questionnaire in private without any interruption. Their participation in this study was completely voluntary and anonymous. No monetary incentive was provided. They were told that their responses would be kept confidential and used only for research purposes. The participants required 25 min on average to complete the questionnaire. The response rate for this survey was about 90%.

Most of the participants in this study, 58.5%, were females, with the remaining 41.5% males. The participants averaged 20.95 years of age ($SD = 2.01$; range = 18–40), with a slight sex difference (males: $M = 21.24$, $SD = 2.14$; females: $M = 20.75$, $SD = 1.88$; $t = 3.98$, $p < 0.001$). A large majority of the participants (88.6%) were local Hong Kongers, with the remaining participants from either mainland China (8.5%) or other countries (2.9%; e.g., Canada, Macau, Japan, Australia, and the USA). About two thirds of the participants (62.1%) were single, more than half (57.6%) had obtained post-secondary school education, and nearly three quarters (73.1%) reported having no religious beliefs (Table 1).

Measures

In this study, a collection of self-reported measures was used to explore (a) the prevalence of general and 14 subtypes of paraphilic interest among the participants, (b) the sex differences in the general and 14 subtypes of

Table 1 Sample demographic characteristics ($N = 1171$)

Variable	Number	Percentage
Sex	$(N = 1,160)$	
Male	481	41.5%
Female	679	58.5%
Country of origin	$(N = 1,154)$	
Hong Kong	1,023	88.6%
Mainland China	98	8.5%
Others (e.g., Canada, Macau, Japan, Australia, and USA)	33	2.9%
Marital Status	$(N = 1,157)$	
Single	718	62.1%
Nonsingle	439	37.9%
Highest education attainment	$(N = 1,156)$	
Secondary school education	492	42.4%
Post-secondary school education (e.g., associate degree/high diploma, and undergraduate and postgraduate degrees)	664	57.6%
Religious belief	$(N = 1,154)$	
Without a religious belief	844	73.1%
With a religious belief e.g., Christianity, Catholic, Buddhism, Muslim)	310	26.9%

paraphilic interest, and (c) the effects of psychosocial factors on general and 14 subtypes of paraphilic interest. The questionnaire with these measures was printed in both English and Chinese for participants with different language needs. To accommodate the local Chinese population, the English-written measures were first translated into Chinese by an experienced and academically qualified English-to-Chinese translator. The Chinese version was then back-translated into English to ensure face validity and compared with the original English version to confirm consistency.

Paraphilias Scale

Forty items measured on a 7-point Likert scale ($-3 =$ very repulsive, $+3 =$ very arousing) were used to assess the participants' interest in paraphilic activities (Seto, Lalumière, Harris, & Chivers, 2012). The total score for the paraphilias scale ranged from -120 to $+120$, where a higher score denoted a greater interest in paraphilic activities. Of the 40 items, 32 referred to 14 subtypes of paraphilic interest. These subtypes are (a) voyeurism (sexual arousal involving the observation of an unsuspecting individual who is naked, undressing, or engaging in sexual activity; one item), (b) exhibitionism (sexual arousal involving the exposure of one's genitals to an unsuspecting individual; one item), (c) scatologia (sexual arousal involving the making of unsolicited and obscene telephone calls; one item), (d) fetishism (sexual arousal involving nonliving objects such as shoes and undergarments; three items), (e) transvestic fetishism (sexual arousal involving cross-dressing activities; two items), (f) frotteurism (sexual arousal involving activities of touching and rubbing against an unsuspecting individual; one item), (g) sadism (sexual arousal involving activities of inflicting harm and humiliation on another individual; six items), (h) masochism (sexual arousal involving activities of being humiliated, beaten, bound, or otherwise made to suffer; six items), (i) biastophilia (sexual arousal involving having sexual intercourse with a nonconsenting individual; two items), (j) urophilia (sexual arousal involving contact with urine; two items), (k) scatophilia (sexual arousal involving contact with feces; two items), (l) hebephilia (sexual arousal involving having sexual intercourse with pubescent children; two items), (m) pedophilia (sexual arousal involving having sexual intercourse with prepubescent children; two items), and (n) zoophilia (sexual arousal involving having sexual intercourse with animals; one item). Higher scores indicated a greater interest in the corresponding paraphilic activities. Sample items are as follows: "You are having your feet kissed, fondled, and touched" (fetishism), "You are spanking, beating, or whipping someone" (sadism), and "You are having sex

with a boy below the age of 12" (pedophilia). It should be noted that two items in the measure were regarded as control items in the original study, as they were referred to interest in adult males and females (Seto et al., 2012). The Cronbach's α of this measure in this study was 0.98 (males = 0.98, females = 0.98).

Self-Control Scale

The six core elements of self-control (i.e., risk-seeking, self-centeredness, impulsivity, volatile temper, preference for physical activities, and preference for simple tasks), as theorized in self-control theory, are widely known to be indicators of low self-control (Gottfredson & Hirschi, 1990). The 23-item Low Self-Control Scale (LSCS) was adopted to measure the participants' levels of self-control (Grasmick, Tittle, Bursik, & Arneklev, 1993). The LSCS was assessed on a 4-point Likert scale (1 = strongly agree, 4 = strongly disagree), with a total score ranging from 23 to 92, where a higher score signified greater self-control. Sample items are as follows: "I always do whatever brings me pleasure here and now, even at the cost of some distant goal," "When I am really angry, other people better stay away from me," and "Excitement and adventure are more important to me than security." The Cronbach's α of this measure in this study was 0.87 (males = 0.89, females = 0.85). This measure has been validated in Chinese and was used in studies conducted in Hong Kong and Macau, which was found to achieve acceptable inter-item reliability (above 0.70; e.g., Chan, 2019b, c and d; Chan & Chui, 2017).

Negative Temperament Scale

To evaluate the participants' levels of negative emotions, eight items on a 4-point Likert scale (1 = strongly agree, 4 = strongly disagree) were used (Tillyer & Wright, 2014). The total score for this measure ranged from 8 to 32, with a higher score indicating a more strongly negative temperament. Sample items are as follows: "I get stressed out easily," "I get upset easily," and "I frequently have mood swings." In this study, the internal consistency of this measure was 0.64 (males = 0.64, females = 0.65). Although the Cronbach's α of this measure was below, but approaching, the acceptable level of 0.70 (Nunnally, 1978), this estimate should be studied cautiously and keeping in mind of the very limited utility of the Cronbach's α , which primarily measures the "interrelatedness of the items" (Sijtsma, 2009). Straus and Kantor (2005) claimed that low internal consistency may also be due to highly skewed distributions of included items as this reduces "the size of the correlation between items and therefore also the alpha" (p. 25). This scale was used previously in another

study with Hong Kong participants, and has achieved acceptable Cronbach's α value (i.e., 0.70; Chan, 2019b, c and d).

Alcohol and Drug Use Scale

An eight-item measure on a 6-point Likert scale (0 = never, 5 = 20 or more times) was adopted to assess the participants' alcohol and drug use over the past 30 days (Espelage, Low, Rao, Hong, & Little, 2014) with a total score ranging from 0 to 40, where a higher score indicated a higher frequency of alcohol and drug use. Sample items are as follows: "Drank wine or wine coolers (more than a sip or taste)," "Used marijuana (pot, hash, or reefer)," and "Smoked cigarettes." The Cronbach's α value of this measure in this study was 0.80 (males = 0.80, females = 0.80). This measure was previously adopted in another study that recruited Hong Kong participants, with a high alpha coefficient value (i.e., 0.89; Chan, 2019c and d).

Risky Sexual Behavior Scale

A slightly modified version of the 23-item Sexual Risk Survey (SRS; Turchik & Garske, 2009) was used in this study to assess the participants' level of involvement in risky sexual behavior over the past 6 months. This measure was dichotomized (0 = no, 1 = yes). The total score of the SRS ranged from 0 to 23, with a higher score indicating greater involvement in risky sexual behavior. Sample items asked whether the participants had "Had an unexpected and unanticipated sexual experience," "Had anal sex without a condom," and "Had sex with someone he/she didn't know well or had just met." The Cronbach's α value of this measure in this study was 0.69 (males = 0.72, females = 0.60).

Social Bonding Scale

To measure the participants' conventional attachments and ties to their parents, peers, school, and society, the 18-item Social Bonding Scale (SBC; Chapple, McQuillan, & Berdahl, 2005) was adopted. The SBC was developed based on Hirschi's (1969) social control theory. Attachment to parents was separated into two separate latent constructs (i.e., parental dependence and parental bonding). Adopting 4-point (1 = never, 4 = many times; two items) and 5-point (1 = strongly disagree, 5 = strongly agree; 16 items) Likert scales, the total score of the SBC ranged from 18 to 38, where a higher score denoted a stronger social bond. Sample items are as follows: "I share my thoughts and feelings with my mother," "I would like to be the kind of person my best friend is," and "I have lots of respect for the police." In this study, the internal consistency of this measure was 0.72 (males = 0.72, females = 0.71). This scale has been

validated in Chinese and was used in studies with samples recruited from Hong Kong and Macau, with acceptable internal consistency (above 0.70; e.g., Chan, 2019b, c and d; Chan & Chui, 2012, 2013, 2015).

Perceptions of Neighborhood Disorganization Scale

Five items on a 4-point Likert scale (1 = strongly agree, 4 = strongly disagree) were used to assess the participants' perceptions of neighborhood disorganization in their living environment (Posick, 2013). The total score of this scale ranged from 5 to 20. Sample items are as follows: "There is a lot of fighting," "There is a lot of graffiti," and "There is a lot of crime in my neighborhood." These items were then reverse-coded so that higher scores would denote higher levels of perceived neighborhood disorganization. The Cronbach's alpha of this scale in this study was 0.93 (males = 0.93, females = 0.92). This scale was adopted in a previous study that sampled Hong Kong participants, with a high level of internal consistency (i.e., 0.93; Chan, 2019b, c and d).

Analytic Strategy

In this study, Mann–Whitney *U* tests were used to examine the sex differences in the general and 14 subtypes of paraphilic interest (i.e., voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, masochism, biastophilia, urophilia, scatophilia, hebephilia, pedophilia, and zoophilia) as the distribution of these variables was highly skewed; while independent sample *t* tests were used to explore the sex differences in the psychosocial factors (i.e., self-control, negative temperament, alcohol and drug use, risky sexual behavior, social bonding, and perceived neighborhood disorganization). Next, Spearman's rho correlations were tabulated to explore the interrelatedness of general and 14 subtypes of paraphilic interest. Lastly, ordinary least squares (OLS) regressions were adopted to examine the effects of different psychosocial factors on general and 14 subtypes of paraphilic interest while controlling for the participants' demographic characteristics (i.e., age, religiosity, and marital status). The OLS regression model was used as it allows to estimate values of a continuous response variables using more than one explanatory variables and to identify the strength of the relationships between these variables. The participants' religiosity was assessed using a 6-point Likert scale asking how religious they perceived themselves to be (1 = not at all, 6 = very strongly). Pearson correlations of the tested constructed were computed. No correlation at or above 0.70 was found, denoting no collinearity. The significance level was set at 0.05.

Table 2 Sex differences of the prevalence of self-reported paraphilic interests and psychosocial factors

Variable	All sample (N = 1171)		Male (N = 481)		Female (N = 679)		t/Z value
	M	SD	Mean rank		Mean rank		
Paraphilic interest							
General interest	-73.55	42.55	621.63		548.88		-3.65***
Voyeurism	-1.73	1.61	648.45		529.01		-6.54***
Exhibitionism	-2.13	1.33	609.13		551.67		-3.39**
Scatologia	-2.23	1.23	600.32		563.06		-2.24*
Fetishism	-3.29	3.87	635.75		538.14		-4.93***
Transvestic fetishism	-3.30	2.69	534.67		609.40		-3.89***
Frotteurism	-1.73	1.53	632.11		538.89		-5.06***
Sadism	-10.31	7.36	605.60		560.60		-2.31*
Masochism	-11.39	7.16	583.31		575.95		-0.38
Blastophilia	-3.89	2.73	641.14		535.10		-5.75***
Urophilia	-4.78	2.10	610.61		555.86		-3.28**
Scatophilia	-4.96	2.01	600.08		564.11		-2.28*
Hebephilia	-4.29	2.28	625.78		545.17		-4.40***
Pedophilia	-4.54	2.22	623.47		547.58		-4.31***
Zoophilia	-2.42	1.15	595.04		563.45		-2.14*
Variable	All sample (N = 1171)		Male (N = 481)		Female (N = 679)		t/Z value
	M	SD	M	SD	M	SD	
Psychosocial factors							
Self-control	61.26	8.35	60.28	9.16	62.00	7.64	-3.36***
Negative temperament	20.01	2.76	20.30	2.75	19.80	2.75	3.07**
Alcohol and drug use	2.94	4.18	3.65	4.74	2.44	3.66	4.72***
Risky sexual behavior	1.34	2.94	1.59	3.29	1.12	2.39	2.69**
Social bonding	58.17	7.47	56.72	7.55	59.24	7.23	-5.73***
Disorganized neighborhood	8.01	2.78	7.99	2.95	8.03	2.63	-0.23

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Ethical Considerations

This study was approved by the ethical committee of the author's university. The participants could end their participation, contact the primary investigator, and/or receive professional counseling at any time. Data were collected anonymously, and no identifying personal details were recorded.

Results

Sex Differences in Paraphilic Interests and Psychosocial Factors

Table 2 illustrates the mean scores for general and 14 subtypes of paraphilic interest and the psychosocial factors of the male and female participants. The male participants reported significantly higher levels of general paraphilic interests ($U = 141,960.00$, $Z = -3.65$, $p < 0.001$), voyeurism ($U = 128,634.00$, $Z = -6.54$, $p < 0.001$), exhibitionism ($U = 144,470.50$, $Z = -3.39$, $p = 0.001$), scatologia ($U = 151,689.00$, $Z = -2.24$, $p = 0.025$), fetishism ($U = 134,677.50$, $Z = -4.93$, $p < 0.001$), frotteurism ($U = 135,462.50$, $Z = -5.06$, $p < 0.001$), sadism ($U = 149,640.50$, $Z = -2.31$, $p = 0.021$), biastophilia ($U = 132,614.00$, $Z = -5.75$, $p < 0.001$), urophilia ($U = 146,694.00$, $Z = -3.28$, $p = 0.001$), scatophilia ($U = 152,284.50$, $Z = -2.28$, $p = 0.022$), hebephilia ($U = 139,441.50$, $Z = -4.40$, $p < 0.001$), pedophilia ($U = 141,077.50$, $Z = -4.31$, $p < 0.001$), and zoophilia ($U = 152,063.00$, $Z = -2.14$, $p = 0.033$) than the female participants. The female participants only scored significantly higher than the male participants for transvestic fetishism ($U = 141,089.50$, $Z = -3.89$, $p < 0.001$). Relative to the female participants, the male participants reported significantly higher levels of negative temperament ($t = 3.07$, $p = 0.002$), alcohol and drug use ($t = 4.72$, $p < 0.001$), and risky sexual behavior ($t = 2.69$, $p < 0.001$). However, the female participants scored significantly higher for self-control ($t = -3.36$, $p < 0.001$) and social bonding ($t = -5.73$, $p < 0.001$) than their male counterparts.

Spearman's Rho Correlations of General and Subtypes of Paraphilic Interest

Using Spearman's rho correlations, Table 3 presents the significant and positive relationships between the subtypes of paraphilic interest. The correlation coefficients for general paraphilic interest and the 14 subtypes of paraphilic interest for the total sample ranged from 0.43 to 0.94. The correlation coefficients for the male and female participants similarly ranged from 0.36 to 0.93.

Effects of Psychosocial Factors on General and Subtypes of Paraphilic Interest

OLS regressions were computed to examine the correlational effects of psychosocial factors on the participants' general and 14 subtypes of paraphilic interest while controlling for their demographic characteristics (i.e., age, sex, religiosity, and marital status). Table 4 indicates that all of the OLS regression models were significant. Interestingly, the participants' levels of self-control ($B = -0.80$, $SE = 0.15$, $p < 0.001$), negative temperament ($B = 1.16$, $SE = 0.44$, $p = 0.009$), alcohol and drug use ($B = 0.92$, $SE = 0.32$, $p = 0.004$), risky sexual behavior ($B = 2.14$, $SE = 0.49$, $p < 0.001$), social bonding ($B = -0.40$, $SE = 0.17$, $p < 0.001$), and perceived neighborhood disorganization ($B = 1.81$, $SE = 0.44$, $p < 0.001$), as well as being younger ($B = -1.84$, $SE = 0.59$, $p = 0.002$), were significantly associated with their overall paraphilic interest.

Psychosocial factors were also found to have significant correlational effects on different subtypes of paraphilic interest. Self-control was significantly associated with all paraphilic interest subtypes: voyeurism ($B = -0.03$, $SE = 0.01$, $p < 0.001$), exhibitionism ($B = -0.03$, $SE = 0.01$, $p < 0.001$), scatologia ($B = -0.02$, $SE = 0.01$, $p < 0.001$), fetishism ($B = -0.05$, $SE = 0.02$, $p = 0.001$), transvestic fetishism ($B = -0.04$, $SE = 0.01$, $p < 0.001$), frotteurism ($B = -0.02$, $SE = 0.01$, $p < 0.001$), sadism ($B = -0.12$, $SE = 0.03$, $p < 0.001$), masochism ($B = -0.12$, $SE = 0.03$, $p < 0.001$), biastophilia ($B = -0.05$, $SE = 0.01$, $p < 0.001$), urophilia ($B = -0.05$, $SE = 0.01$, $p < 0.001$), scatophilia ($B = -0.04$, $SE = 0.01$, $p < 0.001$), hebephilia ($B = -0.05$, $SE = 0.01$, $p < 0.001$), pedophilia ($B = -0.05$, $SE = 0.01$, $p < 0.001$), and zoophilia ($B = -0.02$, $SE = 0.01$, $p < 0.001$). Similarly, the participants' perceived neighborhood disorganization was significantly and positively correlated with all subtypes of paraphilic interest: voyeurism ($B = 0.05$, $SE = 0.02$, $p = 0.003$), exhibitionism ($B = 0.05$, $SE = 0.01$, $p = 0.001$), scatologia ($B = 0.05$, $SE = 0.01$, $p < 0.001$), fetishism ($B = 0.12$, $SE = 0.04$, $p = 0.005$), transvestic fetishism ($B = 0.11$, $SE = 0.03$, $p < 0.001$), frotteurism ($B = 0.06$, $SE = 0.02$, $p < 0.001$), sadism ($B = 0.30$, $SE = 0.08$, $p < 0.001$), masochism ($B = 0.26$, $SE = 0.08$, $p = 0.007$), biastophilia ($B = 0.09$, $SE = 0.03$, $p = 0.001$), urophilia ($B = 0.08$, $SE = 0.02$, $p < 0.001$), scatophilia ($B = 0.09$, $SE = 0.02$, $p < 0.001$), hebephilia ($B = 0.12$, $SE = 0.02$, $p < 0.001$), pedophilia ($B = 0.10$, $SE = 0.02$, $p < 0.001$), and zoophilia ($B = 0.05$, $SE = 0.01$, $p < 0.001$).

With the exceptions of exhibitionism, transvestic fetishism, and hebephilia, all 14 subtypes of paraphilic

Table 3 Spearman's rho correlations of self-reported paraphilic interests

Paraphilic interest	GI	VR	EX	SL	FT	TF	FR	SD	MS	BP	UP	SP	HP	PP	ZP
All sample (N = 1171)															
General interest	1.00														
Voyeurism (VR)	0.75**	1.00													
Exhibitionism (EX)	0.75**	0.75**	1.00												
Scatologia (SL)	0.75**	0.68**	0.76**	1.00											
Fetishism (FT)	0.80**	0.56**	0.54**	0.55**	1.00										
Transvestic fetishism (TF)	0.79**	0.53**	0.58**	0.63**	0.58**	1.00									
Frotteurism (FR)	0.76**	0.68**	0.66**	0.65**	0.58**	0.53**	1.00								
Sadism (SD)	0.94**	0.70**	0.69**	0.69**	0.71**	0.75**	0.68**	1.00							
Masochism (MS)	0.92**	0.68**	0.71**	0.69**	0.67**	0.75**	0.68**	0.88**	1.00						
Bastophilia (BP)	0.83**	0.75**	0.76**	0.75**	0.59**	0.57**	0.69**	0.79**	0.75**	1.00					
Urophilia (UP)	0.73**	0.58**	0.67**	0.68**	0.54**	0.58**	0.61**	0.68**	0.68**	0.65**	1.00				
Scatophilia (SP)	0.69**	0.57**	0.71**	0.77**	0.48**	0.55**	0.60**	0.63**	0.65**	0.66**	0.79**	1.00			
Hebephilia (HP)	0.77**	0.60**	0.62**	0.65**	0.59**	0.59**	0.64**	0.70**	0.67**	0.66**	0.72**	0.70**	1.00		
Pedophilia (PP)	0.75**	0.59**	0.68**	0.71**	0.55**	0.57**	0.68**	0.69**	0.66**	0.69**	0.74**	0.74**	0.81**	1.00	
Zoophilia (ZP)	0.62**	0.43**	0.57**	0.61**	0.47**	0.52**	0.50**	0.56**	0.58**	0.54**	0.73**	0.71**	0.67**	0.68**	1.00
Male (N = 481)															
General interest (GI)	1.00														
Voyeurism (VR)	0.74**	1.00													
Exhibitionism (EX)	0.77**	0.70**	1.00												
Scatologia (SL)	0.76**	0.59**	0.73**	1.00											
Fetishism (FT)	0.77**	0.50**	0.53**	0.55**	1.00										
Transvestic fetishism (TF)	0.79**	0.55**	0.64**	0.71**	0.53**	1.00									
Frotteurism (FR)	0.75**	0.66**	0.61**	0.59**	0.58**	0.52**	1.00								
Sadism (SD)	0.93**	0.68**	0.69**	0.70**	0.68**	0.73**	0.66**	1.00							
Masochism (MS)	0.91**	0.67**	0.74**	0.73**	0.63**	0.77**	0.67**	0.86**	1.00						
Bastophilia (BP)	0.84**	0.70**	0.72**	0.72**	0.58**	0.58**	0.65**	0.80**	0.75**	1.00					
Urophilia (UP)	0.77**	0.53**	0.67**	0.69**	0.55**	0.70**	0.59**	0.70**	0.74**	0.64**	1.00**				
Scatophilia (SP)	0.72**	0.50**	0.71**	0.79**	0.48**	0.65**	0.54**	0.63**	0.70**	0.64**	0.80**	1.00			
Hebephilia (HP)	0.79**	0.55**	0.62**	0.64**	0.57**	0.65**	0.62**	0.69**	0.71**	0.64**	0.71**	0.69**	1.00		
Pedophilia (PP)	0.78**	0.52**	0.66**	0.69**	0.56**	0.65**	0.67**	0.70**	0.70**	0.68**	0.71**	0.72**	0.80**	1.00	
Zoophilia (ZP)	0.64**	0.36**	0.55**	0.62**	0.48**	0.60**	0.44**	0.55**	0.62**	0.49**	0.72**	0.71**	0.68**	0.68**	1.00
Paraphilic interest	GI	VR	EX	SL	FT	TF	FR	SD	MS	BP	UP	SP	HP	PP	ZP
Female (N = 679)															
General interest (GI)	1.00														
Voyeurism (VR)	0.74**	1.00													
Exhibitionism (EX)	0.77**	0.70**	1.00												

Table 3 (continued)

Paraphilic interest	GI	VR	EX	SL	FT	TF	FR	SD	MS	BP	UP	SP	HP	PP	ZP
Scatologia (SL)	0.76**	0.59**	0.73**	1.00											
Fetishism (FT)	0.77**	0.50**	0.53**	0.55**	1.00										
Transvestic fetishism (TF)	0.79**	0.55**	0.64**	0.71**	0.53**	1.00									
Frotteurism (FR)	0.75**	0.66**	0.61**	0.59**	0.58**	0.52**	1.00								
Sadism (SD)	0.93**	0.68**	0.69**	0.70**	0.68**	0.73**	0.66**	1.00							
Masochism (MS)	0.91**	0.67**	0.74**	0.73**	0.63**	0.77**	0.67**	0.86**	1.00						
Bastophilia (BP)	0.84**	0.70**	0.72**	0.72**	0.58**	0.58**	0.65**	0.80**	0.75**	1.00					
Urophilia (UP)	0.77**	0.53**	0.67**	0.69**	0.55**	0.70**	0.59**	0.70**	0.74**	0.64**	1.00				
Scatophilia (SP)	0.72**	0.50**	0.71**	0.79**	0.48**	0.65**	0.54**	0.63**	0.70**	0.64**	0.80**	1.00			
Hebephilia (HP)	0.79**	0.55**	0.62**	0.64**	0.57**	0.65**	0.62**	0.69**	0.71**	0.64**	0.71**	0.69**	1.00		
Pedophilia (PP)	0.78**	0.52**	0.66**	0.69**	0.56**	0.65**	0.67**	0.70**	0.70**	0.68**	0.71**	0.72**	0.80**	1.00	
Zoophilia (ZP)	0.64**	0.36**	0.55**	0.62**	0.48**	0.60**	0.44**	0.55**	0.62**	0.49**	0.72**	0.71**	0.68**	0.68**	1.00

** $p < 0.01$

interest were significantly and positively correlated with the participants' alcohol and drug use: voyeurism ($B = 0.03$, $SE = 0.01$, $p = 0.025$), scatologia ($B = 0.03$, $SE = 0.01$, $p = 0.003$), fetishism ($B = 0.06$, $SE = 0.03$, $p = 0.036$), frotteurism ($B = 0.02$, $SE = 0.01$, $p = 0.047$), sadism ($B = 0.14$, $SE = 0.06$, $p = 0.015$), masochism ($B = 0.15$, $SE = 0.06$, $p = 0.008$), biastophilia ($B = 0.06$, $SE = 0.02$, $p = 0.009$), urophilia ($B = 0.04$, $SE = 0.02$, $p = 0.022$), scatophilia ($B = 0.04$, $SE = 0.02$, $p = 0.030$), pedophilia ($B = 0.05$, $SE = 0.02$, $p = 0.002$), and zoophilia ($B = 0.02$, $SE = 0.01$, $p = 0.012$). The participants' risky sexual behavior was found to have significant positive relationships with their interest in voyeurism ($B = 0.04$, $SE = 0.02$, $p = 0.025$), exhibitionism ($B = 0.07$, $SE = 0.02$, $p < 0.001$), fetishism ($B = 0.16$, $SE = 0.05$, $p < 0.001$), transvestic fetishism ($B = 0.10$, $SE = 0.03$, $p = 0.002$), frotteurism ($B = 0.07$, $SE = 0.02$, $p < 0.001$), sadism ($B = 0.51$, $SE = 0.09$, $p < 0.001$), masochism ($B = 0.39$, $SE = 0.09$, $p < 0.001$), biastophilia ($B = 0.14$, $SE = 0.03$, $p < 0.001$), and zoophilia ($B = 0.03$, $SE = 0.01$, $p = 0.013$).

The level of negative temperament in the participants was found to be significantly correlated with their interest in exhibitionism ($B = -0.05$, $SE = 0.01$, $p < 0.001$), scatologia ($B = 0.03$, $SE = 0.01$, $p = 0.049$), fetishism ($B = 0.12$, $SE = 0.04$, $p = 0.005$), urophilia ($B = 0.09$, $SE = 0.02$, $p < 0.001$), scatophilia ($B = 0.09$, $SE = 0.02$, $p < 0.001$), hebephilia ($B = 0.09$, $SE = 0.03$, $p < 0.001$), pedophilia ($B = 0.10$, $SE = 0.02$, $p < 0.001$), and zoophilia ($B = 0.06$, $SE = 0.01$, $p < 0.001$). Finally, social bonding significantly predicted only voyeurism ($B = -0.02$, $SE = 0.01$, $p = 0.001$), scatologia ($B = -0.01$, $SE = 0.01$, $p = 0.005$), fetishism ($B = -0.04$, $SE = 0.02$, $p = 0.021$), frotteurism ($B = -0.01$, $SE = 0.01$, $p = 0.044$), sadism ($B = -0.08$, $SE = 0.03$, $p = 0.009$), biastophilia ($B = -0.03$, $SE = 0.01$, $p = 0.026$), and hebephilia ($B = -0.03$, $SE = 0.01$, $p = 0.003$).

In terms of the participants' demographic characteristics, being younger was significantly associated with their interest in voyeurism ($B = -0.05$, $SE = 0.02$, $p = 0.024$), exhibitionism ($B = -0.05$, $SE = 0.02$, $p = 0.008$), scatologia ($B = -0.07$, $SE = 0.02$, $p < 0.001$), transvestic fetishism ($B = -0.08$, $SE = 0.04$, $p = 0.046$), frotteurism ($B = -0.07$, $SE = 0.02$, $p = 0.001$), sadism ($B = -0.22$, $SE = 0.10$, $p = 0.032$), masochism ($B = -0.28$, $SE = 0.10$, $p = 0.007$), biastophilia ($B = -0.10$, $SE = 0.04$, $p = 0.007$), urophilia ($B = -0.11$, $SE = 0.03$, $p < 0.001$), scatophilia ($B = -0.10$, $SE = 0.03$, $p = 0.001$), hebephilia ($B = -0.12$, $SE = 0.03$, $p < 0.001$), pedophilia ($B = -0.09$, $SE = 0.03$, $p = 0.005$), and zoophilia ($B = -0.06$, $SE = 0.02$, $p = 0.001$). Being a male was a significant predictor of having an interest in voyeurism ($B = 0.52$, $SE = 0.10$, $p < 0.001$), fetishism ($B = 0.81$, $SE = 0.23$, $p = 0.001$), frotteurism ($B = 0.41$,

Table 4 OLS regression models of self-reported paraphilic interests

Predictors	General <i>B</i> (<i>SE</i>)	Voyeurism <i>B</i> (<i>SE</i>)	Exhibitionism <i>B</i> (<i>SE</i>)	Scatologia <i>B</i> (<i>SE</i>)	Fetishism <i>B</i> (<i>SE</i>)	Transvestic fetishism <i>B</i> (<i>SE</i>)	Frotteurism <i>B</i> (<i>SE</i>)	Sadism <i>B</i> (<i>SE</i>)
Demographic characteristics								
Age	– 1.84 (0.59)**	– 0.05 (0.02)*	– 0.05 (0.02)***	– 0.07 (0.02)***	– 0.09 (0.06)	– 0.08 (0.04)*	– 0.07 (0.02)**	– 0.22 (0.10)*
Sex (0 = female, 1 = male)	3.44 (2.45)	0.52 (0.10)***	0.15 (0.08)	0.09 (0.07)	0.81 (0.23)**	– 0.75 (0.16)***	0.41 (0.09)***	0.34 (0.43)
Religiosity	– 0.52 (0.80)	– 0.03 (0.03)	– 0.02 (0.03)	– 0.02 (0.02)	– 0.06 (0.08)	– 0.03 (0.05)	0.02 (0.03)	– 0.09 (0.14)
Marital status (0 = nonsingle, 1 = single)	– 3.59(2.44)	– 0.21 (0.10)*	– 0.08 (0.08)	– 0.04 (0.07)	– 0.44 (0.23)	– 0.03 (0.16)	– 0.20 (0.09)*	– 0.69 (0.43)
Psychosocial factors								
Self-control	– 0.80 (0.15)***	– 0.03 (0.01)***	– 0.03 (0.01)***	– 0.02 (0.01)***	– 0.05 (0.02)**	– 0.04 (0.01)***	– 0.02 (0.01)***	– 0.12 (0.03)***
Negative temperament	1.16 (0.44)**	0.02 (0.02)	– 0.05 (0.01)***	0.03 (0.01)*	0.12 (0.04)**	– 0.05 (0.03)	0.03 (0.02)+	0.07 (0.08)
Alcohol and drug use	0.92 (0.32)**	0.03 (0.01)*	0.02 (0.01)	0.03 (0.01)**	0.06 (0.03)*	– 0.04 (0.02)	0.02 (0.01)*	0.14 (0.06)*
Risky sexual behavior	2.14 (0.49)	0.04 (0.02)*	0.07 (0.02)***	0.02 (0.02)***	0.16 (0.05)***	0.10 (0.03)***	0.07 (0.02)***	0.51 (0.09)***
Social bonding	– 0.40 (0.17)	– 0.02 (0.01)**	– 0.01 (0.01)	– 0.01 (0.01)**	– 0.04 (0.02)*	0.01 (0.01)	– 0.01 (0.01)*	– 0.08 (0.03)**
Disorganized neighborhood	1.81 (0.44)	0.05 (0.02)**	0.05 (0.01)**	0.05 (0.01)***	0.12 (0.04)**	0.11 (0.03)***	0.06 (0.02)***	0.30 (0.08)***
Adjusted <i>R</i> ²	0.13	0.12	0.11	0.08	0.09	0.07	0.11	0.13
<i>F</i>	17.28***	15.56***	14.23***	15.49***	12.04***	8.98***	14.11***	18.00***
Predictors	Masochism <i>B</i> (<i>SE</i>)	Bastophilia <i>B</i> (<i>SE</i>)	Urophilia <i>B</i> (<i>SE</i>)	Scatophilia <i>B</i> (<i>SE</i>)	Hebephilia <i>B</i> (<i>SE</i>)	Pedophilia <i>B</i> (<i>SE</i>)	Zoophilia <i>B</i> (<i>SE</i>)	
Demographic characteristics								
Age	– 0.28 (0.10)**	– 0.10 (0.04)**	– 0.11 (0.03)***	0.10 (0.03)**	– 0.12 (0.03)***	– 0.09 (0.03)**	– 0.06 (0.02)**	–
Sex (0 = female, 1 = male)	– 0.44 (0.43)	0.69 (0.16)***	0.27 (0.13)*	0.13 (0.12)	0.37 (0.14)**	0.31 (0.13)*	0.08 (0.07)	
Religiosity	– 0.10 (0.14)	– 0.08 (0.05)	– 0.03 (0.04)	– 0.01 (0.04)	0.02 (0.05)	– 0.01 (0.04)	0.01 (0.02)	
Marital status (0 = nonsingle, 1 = single)	– 0.75 (0.43)	– 0.27 (0.16)	– 0.08 (0.13)	– 0.03 (0.12)	– 0.04 (0.14)	– 0.06 (0.16)	0.09 (0.07)	
Psychosocial factors								
Self-control	– 0.12 (0.03)***	– 0.05 (0.01)***	– 0.05 (0.01)***	– 0.04 (0.01)***	– 0.05 (0.01)***	– 0.05 (0.01)***	– 0.02 (0.01)***	
Negative temperament	0.15 (0.08)	0.04 (0.03)	– 0.09 (0.02)***	0.09 (0.02)***	0.09 (0.03)***	0.10 (0.02)***	0.06 (0.01)***	

Table 4 (continued)

Predictors	Masochism <i>B</i> (<i>SE</i>)	Bistophilia <i>B</i> (<i>SE</i>)	Urophilia <i>B</i> (<i>SE</i>)	Scatophilia <i>B</i> (<i>SE</i>)	Hebephilia <i>B</i> (<i>SE</i>)	Pedophilia <i>B</i> (<i>SE</i>)	Zoophilia <i>B</i> (<i>SE</i>)
Alcohol and drug use	0.15 (0.06)**	0.06 (0.02)**	0.04 (0.02)*	0.04 (0.02)*	0.03 (0.02)**	0.05 (0.02)**	0.02 (0.01)**
Risky sexual behavior	0.39 (0.09)***	0.14 (0.03)***	0.03 (0.03)	0.01 (0.02)	0.03 (0.03)	0.04 (0.03)	0.03 (0.01)**
Social bonding	− 0.04 (0.03)	− 0.03 (0.01)*	− 0.01 (0.01)	− 0.01 (0.01)	− 0.03 (0.01)	− 0.01 (0.01)	− 0.01 (0.01)
Disorganized neighborhood	0.26 (0.08)**	0.09 (0.03)**	0.08 (0.02)***	0.09 (0.02)***	0.12 (0.02)***	0.10 (0.02)***	0.05 (0.01)***
Adjusted <i>R</i> ²	0.09	0.14	0.08	0.07	0.10	0.10	0.08
<i>F</i>	12.71***	18.68***	11.12***	9.33***	13.58***	13.58***	10.22***

Unstandardized beta (*B*) and standard error (*SE*)**p* < 0.05; ***p* < 0.01; ****p* < 0.001

SE = 0.09, *p* < 0.001), biastophilia (*B* = 0.69, *SE* = 0.16, *p* < 0.001), urophilia (*B* = 0.27, *SE* = 0.13, *p* = 0.032), and hebephilia (*B* = 0.37, *SE* = 0.14, *p* = 0.007), while transvestic fetishism (*B* = − 0.75, *SE* = 0.16, *p* < 0.001) was significantly associated with being a female. Lastly, being non-single was only significantly correlated with having an interest in voyeurism (*B* = − 0.21, *SE* = 0.10, *p* = 0.031) and frotteurism (*B* = − 0.20, *SE* = 0.09, *p* = 0.031).

Discussion

Paraphilic interest is broadly defined as sexual arousal from one or more atypical sexual activities (e.g., exposing one's genitals to nonconsenting others) or targets (e.g., prepubescent children). It should be noted that having an interest in some paraphilic behavior may result in illegitimate outcomes (e.g., biastophilia [rape], pedophilia [sex with underage children]), which may pose a serious risk to the public. This study is significant not only for its contribution to the growing literature on the topic but also, and more importantly, for its advancement of knowledge through research on an under-researched population: Hong Kong young adults. The study had two main aims, as follows: (1) to explore sex differences at the mean levels of general and 14 subtypes of paraphilic interest (i.e., voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, masochism, biastophilia, urophilia, scatophilia, hebephilia, pedophilia, and zoophilia) and psychosocial factors (i.e., self-control, negative temperament, alcohol and drug use, risky sexual behavior, social bonds, and perceived neighborhood disorganization); (2) to investigate whether the relationships between different types of paraphilic interests and psychosocial factors hold when controlling for demographic characteristics (i.e., age, sex, religiosity, and marital status). Overall, the male participants reported significantly more general paraphilic interests, voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, biastophilia, urophilia, scatophilia, hebephilia, pedophilia, and zoophilia than the female participants, while the female participants reported significantly more transvestic fetishism than their male counterparts. Relative to the female participants, the male participants reported significantly higher levels of negative temperament, alcohol and drug use, and risky sexual behavior but lower levels of self-control and social bonds. Thus, overall, the male participants were generally found to possess a higher tendency to have paraphilic interests than the female participants.

Several noteworthy findings regarding the effects of psychosocial factors on the probability of having paraphilic interests warrant further discussion; these provide support for various criminological theoretical propositions that explain

paraphilic interests. The findings indicate that the approaches adopted to identify the influence of self-control (i.e., low self-control), general strain (i.e., negative temperament), learning (i.e., alcohol and drug use, and risky sexual behavior), social control (i.e., social bonds), and routine activity and lifestyle (i.e., perceived neighborhood disorganization) were useful in explaining the general paraphilic interests of Hong Kong young adults. Put differently, having low self-control and weak social bonds, consuming alcohol and drugs, engaging in risky sexual behavior, having more negative emotions, and perceiving one's neighborhood to be criminogenic were noted to be strong predictors of an individual's tendency to have a general interest in paraphilic activities. It is also interesting to note that having low self-control and living in a criminogenic neighborhood were found to be significantly associated with having all subtypes of paraphilic interest. The low self-control theoretical proposition hypothesizes that individuals with low self-control are more likely to engage in deviant and offending behavior for their immediate satisfaction without considering the potential adverse consequences (Gottfredson & Hirschi, 1990). Low self-control has long been recognized by cross-cultural studies as a ubiquitous predictor of deviant and offending behavior (e.g., Chan, 2019b and c; Chan & Chui, 2017; Gottfredson, 2009; Sacarellos, Wright, Almosaed, Moghrabi, Bashatah, & Morgan, 2016). However, the routine activity and lifestyle approach postulates that individuals who are exposed to a criminogenic environment (e.g., living in a crime-prone neighborhood) are more likely to absorb pro-deviance norms and values, which makes them more deviance-prone (Mills, 2003). Individuals' present or past exposure to deviant incidents (e.g., crime hotspots) might shape their perception of residing in a disorganized neighborhood. Coupled with their low self-control personality trait, this perception makes them more likely to develop an interest in all of the paraphilic activities examined in this study (i.e., voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, masochism, biastophilia, urophilia, scatophilia, hebephilia, pedophilia, and zoophilia).

Additionally, an individual's alcohol and drug use and risky sexual behavior were significantly correlated with 11 and 10 specific paraphilic interests, respectively (alcohol and drug use: voyeurism, scatologia, fetishism, frotteurism, sadism, masochism, biastophilia, urophilia, scatophilia, pedophilia, and zoophilia; risky sexual behavior: voyeurism, exhibitionism, scatologia, fetishism, transvestic fetishism, frotteurism, sadism, masochism, biastophilia, and zoophilia). According to the learning approach, deviant interests and behavior (e.g., paraphilic interests) are often learned through differential association and behavioral imitation (Akers, 1997; Warr, 2002). For instance, masculine identity is often strengthened by engaging in risky and deviant behavior (Messerschmidt, 1993), and male culture and group membership usually stress

risk-taking, aggression, toughness, and physical strength (Augustyn & McGloin, 2013). Schreck and colleagues (2004) posited that individuals are more inclined to possess deviant interests and to engage in risky and deviant behavior if they spend considerable time in "unstructured socializing" (e.g., consuming alcohol and taking illicit drugs) with their deviant peers. Studies have also found that individuals who engage in risky sexual behavior (e.g., having multiple sexual partners, a strong sexual appetite and preoccupation, and high rates of sexual behavior) are more likely to have paraphilic interests or to be diagnosed with paraphilias (Kafka, 2009; Kafka & Hennen, 2003; Långström & Hanson, 2006).

Consistent with the notion that negative temperament may lead to a heightened risk of deviant interest and behavior (Agnew, 2002), experiencing negative emotions (e.g., frustration, rejection, ridicule, isolation, depression, and anger) was found to be an important factor associated with developing an interest in eight paraphilic activities (i.e., exhibitionism, scatologia, fetishism, urophilia, scatophilia, hebephilia, pedophilia, and zoophilia). As maladaptive corrective actions to cope with dysphoric feelings, paraphilic interests and subsequent paraphilic behavior may give an individual a strong sense of positive emotions (Yakeley & Wood, 2014). Paraphilic interests and activities can be a form of retreat from unwanted emotions (e.g., anxiety and sadness), where behavioral habituation is possible (Hickey, 2002; Levine, Risen, & Althof, 1990). In extreme situations, negative emotions may lead to the perpetration of delinquent and criminal behavior in the presence of paraphilic traits or diagnoses, such as biastophilia, hebephilia, and pedophilia. This is commonly observed in sexual offending behavior, such as violent sexual offenses and sexual homicides (Chan, 2020b; Chan, Beauregard, & Myers, 2015a, b; Chan & Beauregard, 2016). Of note, recognizing the shared risk factors (e.g., individual self-control and temperament) should not be overlooked as they have been consistently found to be significantly related to deviant interest and criminal behavior (DeLisi & Vaughn, 2014).

This study also noted that social bonding was an important factor associated with seven paraphilic interests (i.e., voyeurism, scatologia, fetishism, frotteurism, sadism, biastophilia, and hebephilia). Put differently, individuals with weak social bonds were more likely to develop these atypical sexual interests. This finding generally supports Hirschi's (1969) theoretical proposition that the strength of social bonds is inversely related to the propensity to develop deviant interests and to engage in deviant and criminal behavior. Possessing strong social bonds with parents, family, prosocial peers, school, and society insulates an individual from developing deviant interests (e.g., paraphilic interest) and engaging in deviant activities. The impact of strong, prosocial bonds with parents and family members on an individual's psychological well-being and behavior

is universal. Healthy and secure parental and familial attachment is essential to protect an individual from becoming involved in any deviant interests and activities (Chan & Wong, 2019). Notwithstanding, Chan and Chui (2015) stressed that the roles that schools/universities (e.g., through a commitment to education) and society (e.g., through a belief in the criminal justice system) play in guarding an individual from developing deviant interests and engaging in deviant activities is equally important.

Several methodological limitations in this study require attention. One limitation of this study is its correlational nature. At most, the findings can only be interpreted in correlational terms. To better understand the causal relationships between the participants' psychosocial factors and their self-reported paraphilic interests, future research could adopt a longitudinal design and theoretical models that are more commonly used to comprehend sexual interests (e.g., the dual control model of sexual response; Bancroft & Janssen, 2000; Granados, Carvalho, & Sierra, 2020). The dual control model broadly proposes that sexual responses involve an interaction between sexual excitatory and sexual inhibitory processes, in which individuals may vary in their propensity for both sexual excitation and sexual inhibition (Bancroft, Graham, Janssen, & Sanders, 2009). Besides, future research could consider studying the relationship between sadistic interest and subsequent sadistic behavior, as it is regarded as the most severe paraphilia and is found to have linkages to sexual homicide (Chan, 2020a, b; Chan & Beauregard, 2016; Chan et al., 2015a, b; DeLisi, Drury, Elbert, Tahja, Caropreso, & Heinrichs, 2017). Another avenue for future research lies on the relationship between adverse childhood experiences and paraphilic interest and behavior. Past studies have noted a significant influence of the adverse childhood experiences on the development of paraphilic interest and behavior (Drury, Heinrichs, Elbert, Tahja, DeLisi, & Caropreso, 2017; Leroux, Clow, Motayne, & Seto, 2020). Second, this study was limited to self-reported data. Biases such as social desirability or retrospective recall bias may have influenced the participants' truthfulness in reporting their attitudes, perceptions, and experiences. Besides, some of the Western-developed measures adopted in this study have yet to be culturally validated. The validity of these measures used in an Asian population remains unclear. Hence, future studies could incorporate a measure for response bias to reduce participants' potential reporting biases and to use cultural-specific measures. Finally, recruiting participants from universities may prevent the reliable generalization of the findings to a wider Hong Kong population, including the young adult population. Future studies could recruit participants from all walks of life. Nevertheless, this sample could be considered representative of the wider Hong Kong university student population, as it was recruited from all universities in Hong Kong.

Implications of the Findings

The adverse outcomes of paraphilic interests, with potential escalation to paraphilic behavior, should not be understated. As stated by Carvalho (2018), paraphilic interests can escalate to becoming a motivational factor in some sexual offenses. These interests may range from a sexual preference for children, sadism, and nonconsenting coercive sex. The findings of this study have important implications for practice. Efforts to raise public awareness of healthy living (e.g., sexual health), especially among late adolescents and young adults, should be enhanced and begin much earlier in life. School- and community-based preventive efforts should incorporate education materials on the risks and outcomes associated with atypical sexual interest and behavior (e.g., paraphilic interest and behavior). Specific changes in risky sexual behavior, such as decreasing alcohol consumption and drug use before sex, transforming attitudes about safer and socially acceptable sexual practices (e.g., nonparaphilic activities), reducing the number of sexual partners, and negotiating condom use for safer sex, are essential educational messages to deliver to the younger population (Staton et al., 1999). Issues relevant to paraphilic interests and hypersexuality should also be addressed for young people to better understand the key effects of other aspects of sexuality, such as general sexual inhibition and excitation, on the development of paraphilic interests (Dawson et al., 2016). Government anti-drug campaigns should consider emphasizing the role of illicit drug (and alcohol) use in cultivating paraphilic interests.

In addition, school and community-based resources for positive and prosocial self-development and counseling services should be strengthened to encourage and assist those who need to promptly and efficiently cope with their negative emotions. Public seminars regarding psychological and emotional health should be conducted regularly to disseminate useful information regarding effective strategies for coping with negative emotions (e.g., anger management, self-assertiveness, and general positive emotions). Social norm interventions may be useful for individuals who are potentially at high risk of developing a paraphilic interest or who are presently engaging in paraphilic activities to address their misperceptions of alcohol consumption, paraphilic activities, and risky sexual behavior. This intervention not only can provide a remedial effect by reducing the frequency with which individuals who already engage in a behavior choose to do so (e.g., paraphilic behavior, risky behavior, and alcohol and drug use) but may also correct misperceptions among those who are not yet frequently engaging in such behavior (Martens, Page, Mowry, Damann, Taylor, & Cimini, 2006).

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