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Original Article

Impulsive-compulsive sexual behaviors: Model fit test

Akbar Bolvardi[1],Robabeh Nouri[2*], Shahram Mohammadkhani[3], Jafar Hasani[4]

[1]*Department of clinical Psychology. kharazmi university, Tehran, Iran*
2 Faculty of Psychology and Educational Sciences ,Department of clinical Psychology, kharazmi university, Tehran, Iran.
3 Faculty of Psychology and Educational Sciences ,Department of clinical Psychology, kharazmi university, Tehran, Iran
4 Faculty of Psychology and Educational Sciences ,Department of clinical Psychology, kharazmi university, Tehran, Iran

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Abstract

Background and Aim: Compulsive sexual behavior disorder is characterized by a persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behavior. The aim of this study was to standardize the Impulsive-compulsive Sexual Behaviors (ICSB) Questionnaire and to present and test an experimental model to explain impulsive-compulsive sexual behaviors.

Materials and Methods: The sample consisted of 257 individuals who referred to counseling centers in Tehran with complaints of sexual hyperactivity, sexual addiction and high-risk sexual behaviors. The Compulsive-Impulsive Sexual Behavior Questionnaire, the Persian version of Jackson-5 Scales Questionnaire, Attachment Style Questionnaire, Marital Intimacy Scale, Hulbert Index of Sexual Assertiveness (HISA) Questionnaire,Sexual Knowledge and Attitude Scale, and Emotion and Self-Regulation Questionnaire were used in this study. Using LISREL software, structural equation method was used to test the model and using SPSS statistical software, exploratory factor analysis was performed to standardize the questionnaire.

Results: The research findings showed that, among the three components of personality: BAS (SC=-0.109), BIS (SC: -0.357) and FFFS (SC=0.617), have a direct effect on secure attachment style. BIS SC: (0.2) and FFFS (SC=0.219) have a direct effect on the avoidant attachment style. The FFFS (SC=0.416) has a direct effect on anxious attachment style. Among the attachment styles, avoidant style (SC=-0.135) and anxious style (SC=-0.415) have a direct effect on emotion regulation. Sexual motivation (SC=0.174) on intimacy, (SC=0.386) on sexual knowledge and attitude, (SC=-0.225) on the emotion regulation and (SC=-0.405) on ICSBs, had a direct effect. There was a direct effect between intimacy (SC=0.291) on emotion regulation and (SC=-0.207) on ICSBs. There was a direct effect between intimacy, (SC=0.291) on emotion regulation and (SC=-0.207) on ICSBs. Also there was a direct effect between sexual knowledge and attitude (SC=-0.616) on ICSBs. Regulating emotion does not affect ICSBs.

Conclusion: The proposed model can explain the relationships between the occurrence of CISBs and ten effective factors (directly and indirectly) including: personality (BAS, BI S, FFFS), attachment style (secure, avoidant, Anxious), sexual motivation, intimacy, knowledge, and sexual attitude and emotion regulation.

Keywords: Attachment style, Emotional self-regulation, Impulsive -compulsive sexual behaviors, Intimacy, Personality, Sexual knowledge

***CorrespondingAuthor:**Robabeh Nouri, Department of clinical Psychology, kharazmi University, Tehran, Iran. Email:

rynoury11@gmail.com.
ORCID: 0000-0003-3414-3539

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Introduction

Conceptualizationof obsessive- compulsive and impulsive sexual behavior has always been controversial, and its terms have been changed over time, throughout the conceptualization process (out of control sexual behavior, compulsive sexual behavior, sexual addiction and etc.)(1) The term "excessive sexual desire" used in the 10th edition, has been deleted in the 11th edition of the World Health Organization's International Classification of Diseases (ICD), and replaced by the term "compulsive sexual behavior disorder" considering the subset of "impulse control disorders", and is defined as follows(1):

"Compulsive sexual behavior disorder is characterized by a persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behavior. Symptoms may include repetitive sexual activities becoming a central focus of the person's life to the point of neglecting health and personal care or other interests, activities and responsibilities; numerous unsuccessful efforts to significantly reduce repetitive sexual behavior; and continued repetitive sexual behavior despite adverse consequences or deriving little or no satisfaction from it. The pattern of failure to control intense, sexual impulses or urges and resulting repetitive sexual behavior is manifested over an extended period of time (e.g., 6 months or more), and causes marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning. Distress that is entirely related to moral judgments and disapproval about sexual impulses, urges, or behaviors is not sufficient to meet this requirement."

Conceptual and therapeutic approaches have been developed for Impulsive-Compulsive Sexual Behavior (ICSB); specifically, most conceptualizations mention the importance of biological, psychological, and sociocultural factors in the development of ICSB (2) Yet, they differ in the degree of emphasis on the prominent factor underlying the etiology of ICSB and subsequent focus of treatment (2). One of the earliest models of ICSB described hyperphilia based upon John Money's theory of sexual development and pathology. ICSB was conceptualized as a psychosexual developmental disorder. Biological factors, social learning and disruptions in psychosexual development-including familial and cultural factors-contributed to the development of hyperphilia. His treatment emphasized pharmacological approaches (mostly the use of anti-androgens) and outpatient counseling (which was never clearly outlined) (2).

Patrick Carnes, who published the Sexual Addiction Model, emphasizes the dynamic role of family systems and Trauma; researchers believe that the sexual addiction model is an inappropriate name and a non-practical model (3-4). Kafka's model of compulsive sexual behavior differs from Carnes and Money's; because he thought that sex was a basic appetite drive that was irregularly regulated. Others have proposed a model, in which conceptualizes the ICSB, as a type of impulse control disorder, or behavioral addiction (5-6). In contrast, Braun-Harvey and Vigorito (7) use a sexual health model that conceptualizes compulsive sexual behavior as a socio-cultural issue called "out of control sexual behavior. "Their conceptualization is based on the integration of human development theories including attachment style (8) and various theories of motivation and emotion including the dual control model of sexual behavior expressed by Bancroft &Vukadinovic (9) and self-management theory including executive functions and emotional self-regulation (10) and regulation of competing motivations (11) have been formed.

Coleman, Dickinson, Gerard, Reader, Candelario-Perez, Becker-Warner, CowVick, and Mans (2) in the latest conceptual model for explaining Impulsive-Compulsive Sexual Behaviors, emphasize the impact of biological, psychological, and socio-cultural factors; this model is significantly different from the addiction

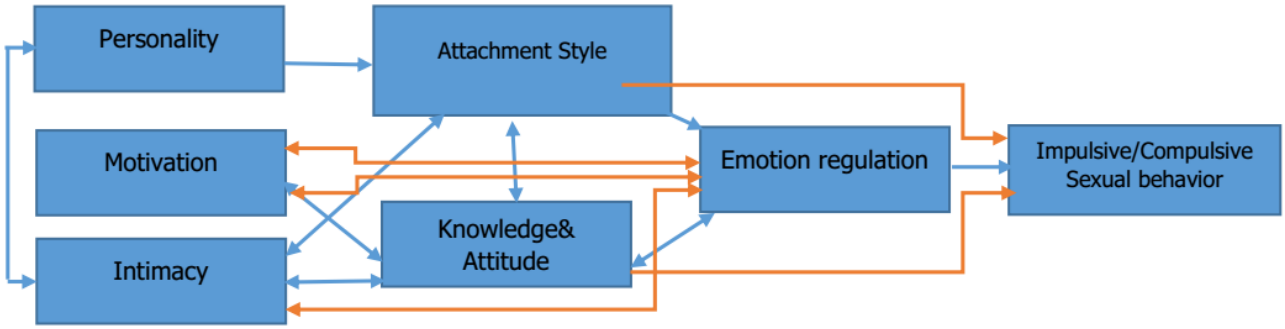

Figure 1. The hypothetical model based on the study of Coleman (2).

model while acknowledging the importance of neurobiological factors and trauma. They believe that sex is an appetitive drive that can become dysregulated through imbalances in neuroanatomy and neurochemistry, similar to Kafka's model and deficits in self-management and executive functioning, similar to the impulse control disorders (12).

The model of Coleman et al. (2) is most similar to the Braun-Harvey and Vigorito model. They consider a positive sexual approach, understand the ICSB from different perspectives, and work to resolve inter- and intra- intimacy conflicts. This model emphasized the impact of biological factors as well as psychological and socio-cultural factors and believes that the ICSB can be conceptualized as a clinical disorder.

The Coleman model (2) was first developed in the mid-1980s and has evolved over time, and its providers conceptualize the modified bio-psychosocial approach, arguing that biological, psychological, and sociocultural factors interact as a whole. The evolution of the ICSB takes place in a continuous environment, where the interaction of physiological, genetic, social, cognitive, emotional, and cultural factors over time affects its formation. Moreover, psychological influences are the result of the intersection between biological and environmental influences. Inherent in this perspective is the notion that any given behavior can be adaptive in one context, but maladaptive in another. This perspective naturally facilitates a sex positive framework and allows both therapist and client to understand the underlying mechanisms without judgment. The sex positive approach is paramount and comes from a sexological perspective which is, by its nature, an interdisciplinary study of human sexuality and eroticism that recognizes the vast range of normal sexual behavior (2).

Considering the above on the impulsive-compulsive sexual behaviors modeling, as well as the lack of a suitable conceptual and causal model in the field of impulsive-compulsive sexual behaviors, the lack of theoretical foundations and identification of factors affecting it, designing and implementing this research is necessary. This study aims to investigate the etiology of impulsive-compulsive sexual behaviors in the affected population by presenting and testing a causal model.

Methods

The research method of this study was correlational and path analysis. The statistical population were all married people (male and female) referring to Tehran Counseling and Psychology Centers, in 2019/2020. According to the analysis of Hair, Black, Babin, & Anderson (13) on sample size in structural equation models, which suggest a minimum sample size for models with seven or fewer structures and a low subscription rate in the factor 300 models. The statistical sample of this study was 257 married men and women, referring to Tehran Counseling and Psychology Centers in 2019/2020, who after informed consent, were participated in this study.

The samples were selected purposively and based on the following criteria: considering the clinical record and expert diagnosis; the participants have referred because of the disorders related to excessive sexual desire or hyper sexuality sexual addiction, high-risk

sexual behaviors, pornography, and impulsive-compulsive sexual behaviors; Willingness to do an interview and expressing consent to participating in the research, Married or being in a relationship and minimum age of 18 years.

Materials

Compulsive-Impulsive Sexual Behaviors List

The 28-item instrument was developed by Coleman, Miner, Ohlerking, and Raymond (14) to assess compulsive/impulsive sexual behaviors. The questionnaire included three components: control, abuse, and violence. The designers obtained the instrument's Discrimination Index by performing it on three groups: people with Pedophilia, people with Impulsive sexual behaviors, and normal people, 92%. In the study of Bolvardi, Nouri, Mohammadkhani, and Hasani (15) the factor analysis results of compulsive-impulsive sexual behaviors of Coleman, Miner, Ohlerking, and Raymond (14) obtained three factors: control, violence, and abuse; the questionnaire validity, using the Internal consistency method indicated the relatively appropriate internal consistency of the questionnaire and its components; Cronbach's alpha of the control, violence and the abuse components was 0.86, 0.54, and 0.63, respectively.

Jackson-5 Scales Questionnaire (Farsi Version)

The questionnaire includes 30 items and 5 subscales: Behavioral Activation System (BAS), Behavioral Inhibition System (BIS), Fight, Flight, and Freezing. Jackson demonstrated the factor structure of this scale using factor analysis. Moreover, the acceptable Cronbach's alpha was obtained for the Behavioral Inhibition System (0.76), Behavioral Activation (0.83), and Fight, Flight, Freezing (0.74) (Fight, 0.78; Flight, 0.74 and freezing, 0.70) (16).

In Iran, Hassani et al. (16) examined the validity and reliability of the Persian version of the instrument. Cronbach's alpha range (0.72 to 0.88), re-test coefficients (0.64 to 0.78), and material set correlations (0.28 to 0.68) indicated the optimal validity of the Persian version of the Jackson Five-scale Questionnaire. Exploratory and confirmatory factor analysis supported the main five-factor patterns of the questionnaire. Internal relationships between subscales were optimal (0.11 to 0.53). Finally, the existence of specific patterns of correlation coefficients between the questionnaire subscales, with positive emotion, negative emotion, behavioral inhibition/activation systems scale, Eysenck personality dimensions, and Bart hostility dimension indicated good criterion-related validity (17).

Attachment Style Questionnaire

Collins & Read developed the Revised Adult Attachment Scale (RAAS) questionnaire based on Hazan and Shaver's theory. This questionnaire includes 18 items and three subscales: Anxious style (A): which corresponds to Ambivalent Attachment Style; Vicinity Style (C): Compliant with Secure Attachment Style; Attachment style (D): which is almost the opposite of Avoidant Attachment Style. According to Collins & Read, the reliability of the questionnaire was 0.80. Moreover, the research results of Talaian and Vazpour (18) using the re-test method showed that this questionnaire is reliable at 0.95.

Marital Intimacy Scale

This questionnaire is a 17-item instrument, designed to measure affection and intimacy. Its validity was evaluated by Etemadito determine content and face validity, first, the questionnaire was reviewed by 15 counseling professors and 15 couples, and its face and content validity was confirmed (19). In addition, Zarei (20) confirmed the criterion-related validity of the scale through simultaneous implementation with the Bagarozzi questionnaire and estimation of the correlation coefficient (0.82).

Index of Sexual Assertiveness (HISA) uestionnaire

The questionnaire, which measures sexual assertiveness consists of 25 items, was developed by Hurlbert (21). The questions of the sexual assertiveness questionnaire are widely used by clinical therapists to assess sexual and marital problems. The minimum and maximum scores of sexual assertiveness are between zero and 100, in which a high score indicates the subjects' high degree of sexual assertiveness. According to Hurlbert (21) the reliability of the sexual assertiveness questionnaire was 0.86 using a retest. The internal consistency coefficients of the Hulbert sexual assertiveness questionnaire using the Cronbach's alpha method were 0.89 (21).

Sexual Knowledge and Attitude Scale

This scale is a 20-item test and has been developed and

Table 1: Descriptive indicators of research variables.

Variable	Component	M	SD	skewness	kurtosis
Personality	BAS	3.52	0.56	-0.484	-0.487
	BIS	3.80	0.68	-0.795	1.146
	Fight system	3.09	0.74	0.422	0.883
	Flight system	2.60	0.69	-0.221	-0.595
	Freeze-system	2.63	0.77	0.596	0.182
Attachment styles	secure	12.60	2.33	-0.311	-0.497
	avoidant	11.96	2.66	-0.299	-0.171
	anxious/ambivalent	13.53	5.39	-0.116	-0.774
Sexual motivation	Sexual motivation	75.04	16.64	-0.770	0.156
intimacy	intimacy	4.47	1.40	0.040	-0.939
Sexual knowledge and attitude	total	77.44	10.41	-0.259	-0.533
	knowledge	34.47	4.45	-0.298	-0.189
	attitude	39.02	5.92	-0.334	-0.581
Emotional self-regulation	Compatibility	3.04	0.78	-0.414	0.218
	Secrecy	2.88	0.83	0.297	-0.771
	Tolerance	3.25	0.61	-0.106	-0.859
Sexual Impulsivity	Control	36.54	9.81	0.880	0.487
	abuse	14.58	1.41	-0.573	-1.005
	violence	12.85	1.25	-1.287	1.446

standardized to measure two dimensions of knowledge and sexual attitude in Iranian society. In the research of Besharat and Ranjbar (22) the internal consistency of the sexual knowledge and attitude scale was calculated in terms of Cronbach's alpha coefficients and was confirmed using correlation coefficients from 0.84 to 0.94. The reliability of the scale retest was also calculated based on the results of twice doing the test and was confirmed with correlation coefficients of 0.76 to 0.87.

Emotion and Self-Regulation Questionnaire

The questionnaire consists of 20 items and three subscales: Secrecy, adjusting, and tolerating. In the research of Karshki to determine the validity of this questionnaire, content validity, principal component analysis, and factor structure were used. Cronbach's alpha for the subscales of Secrecy, adjusting, and tolerating was 0.70, 0.75, and 0.50, respectively, and the total reliability was 0.81. (23) The reliability coefficient of the questionnaire in the research of SaberiFard and Haji Arbabi was 0.83 (24).

In the present study, the hypothetical model was tested using obtained data from model variables and using structural equation modeling. SPSS 21 and LISREL were used for data analysis.

Results

The sample of the present study consisted of 152 (59.1%) men and 105 (49.9%) women, and 128 (49.8%) of them were married, 108 (42%) were single and 21 (8.2%) were divorced. Descriptive statistics of variables are presented in Table 1.

Examining the assumptions of structural equation modeling is significantly important. Fulfillment of these assumptions includes normality (skewness of observable variables in the absolute value domain from 0.040 to 1.287 and their kurtosis in the absolute value domain from 0.156 to 1.446), Multicollinearity (Studying the correlation matrix between obvious variables indicated the lack of multicollinearity between them; correlation coefficients for the research hypothetical model are less than 0.80) and examining of outliers and invalid data confirm the appropriateness of using this statistical method for the present study.

The fitness indices of the structural model are shown in Table 2. As the contents of this table show, the fitness indices of the structural model indicate the model's goodness of fit index. All model indices except RMSEA are within the model acceptance range; therefore, the structure of the research hypothetical model is approved.

In the following, the research conceptual model, along with the standardized path coefficients, is shown in Figure 2. Figure 2 shows the research structural model. The significant and insignificant paths are represented as continuous and discontinuous lines, respectively. Table 3 presents non-standardized, standardized

Table 2: fitness indices of the structural model.

Fitness index	Acceptable domain	Value
χ^2	–	631.897
Chi-square/df	<5	2.747
comparative fit index(CFI)	>0.90	0.925
IFI	>0.90	0.927
RMSEA	<0.08	0.083
SRMR	<0.08	0.080

coefficients and significant indices of direct paths.

Discussion

The purpose of this study was to present and testing a causal model to explain the occurrence of CISBs. The proposed model, directly and indirectly, tested the relationships between ten variables: personality (BAS, BIS, FFFS, attachment style, sexual motivation, intimacy, knowledge, and sexual attitude and emotion regulation with CISB:

Personality

The results are consistent with the results of Meyer et al. (25), who assumed that BIS and BAS predict distress and the individual behavior toward avoidant; some theorists to explain these results have emphasized that individuals differ in the sensitivity and responsiveness of two basic motivational systems, and it is thought that they determine emotional and behavioral responses in threatening situations. In fact, BIS is a nervous system that processes threat information and causes anxiety, persistent inhibition of behavior, increased excitation, and pay attention to the threat in response to danger signals. In contrast, BAS is a nervous system, which is involved in processing information on motivation or reward (25).

About the relations that have been found between three

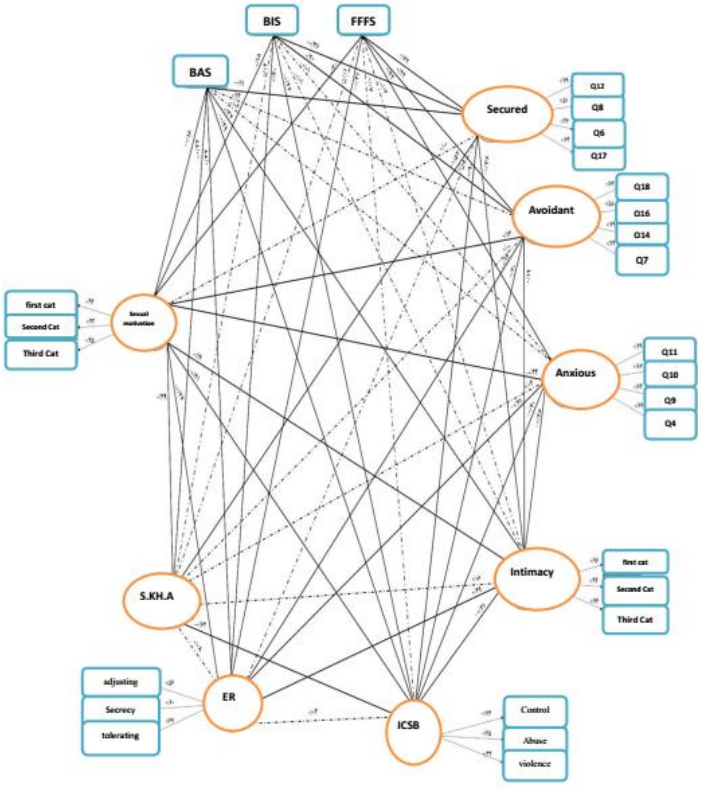

Figure 2. The research conceptual model, along with the standardized path coefficients.

Table 3: Path coefficients, effects of latent variables, and significance of estimated parameters.

Independent Variable	Dependent Variable	Standardized coefficient	Unstandardized coefficient	standard error	t	P
BAS	secure	-0.109	-0.093	0.044	-2.132	0.03
BAS	avoidant	-0.127	-0.182	0.105	-1.737	0.08
BAS	anxious/ambivalent	-0.057	-0.083	0.086	-0.967	0.33
BIS	secure	-0.357	-0.251	0.041	-6.165	***
BIS	avoidant	0.2	0.236	0.073	3.251	0.00
BIS	anxious/ambivalent	-0.014	-0.017	0.066	-0.264	0.79
FFFS	secure	0.617	0.222	0.028	7.986	***
FFFS	avoidant	0.219	0.132	0.037	3.592	***
FFFS	anxious/ambivalent	0.416	0.255	0.037	6.797	***
BAS	Sexual motivation	-0.162	-1.786	0.547	-3.267	0.00
BIS	Sexual motivation	0.179	1.624	0.494	3.285	0.00
FFFS	Sexual motivation	0.2	0.926	0.3	3.085	0.00
BAS	Intimacy	-0.369	-5.108	0.727	-7.022	***
BIS	Intimacy	-0.013	-0.149	0.651	-0.229	0.81
FFFS	Intimacy	-0.057	-0.328	0.432	-0.759	0.44
BAS	Sexual knowledge and attitude	-0.216	-4.057	0.968	-4.189	***
BIS	Sexual knowledge and attitude	0.016	0.254	0.827	0.308	0.75
FFFS	Sexual knowledge and attitude	-0.013	-0.102	0.525	-0.194	0.84
BAS	Emotion Regulation	0.316	0.242	0.05	4.826	***
BIS	Emotion Regulation	0.4	0.251	0.041	6.129	***
FFFS	Emotion Regulation	-0.206	-0.066	0.025	-2.658	0.00
BAS	Sexual Impulsivity	-0.292	-0.476	0.15	-3.181	0.00
BIS	Sexual Impulsivity	-0.459	-0.613	0.153	-4.015	***
FFFS	Sexual Impulsivity	0.069	0.047	0.066	0.711	0.47
secure	Sexual motivation	-0.002	-0.029	0.876	-0.033	0.97
avoidant	Sexual motivation	0.131	1.007	0.383	2.627	0.00
anxious/ambivalent	Sexual motivation	-0.239	-1.807	0.453	-3.989	***
secure	Intimacy	-0.357	-5.775	1.323	-4.366	***
avoidant	Intimacy	0.19	1.828	0.478	3.827	***
anxious/ambivalent	Intimacy	-0.263	-2.493	0.555	-4.491	***
secure	Sexual knowledge and attitude	-0.522	-11.458	2.085	-5.495	***
avoidant	Sexual knowledge and attitude	0.001	0.012	0.638	0.019	0.98
anxious/ambivalent	Sexual knowledge and attitude	0.042	0.536	0.66	0.811	0.41
secure	Emotion Regulation	0.081	0.072	0.083	0.87	0.38
avoidant	Emotion Regulation	-0.135	-0.072	0.031	-2.305	0.02
anxious/ambivalent	Emotion Regulation	-0.415	-0.217	0.035	-6.123	***
secure	Sexual Impulsivity	-0.904	-1.718	0.273	-6.294	***
avoidant	Sexual Impulsivity	0.202	0.229	0.065	3.529	***
anxious/ambivalent	Sexual Impulsivity	-0.405	-0.451	0.113	-3.99	***
Sexual motivation	Intimacy	0.174	0.218	0.067	3.235	0.00
Sexual motivation	Sexual knowledge and attitude	0.386	0.658	0.088	7.433	***
Sexual motivation	Emotion Regulation	-0.225	-0.016	0.004	-3.518	***
Sexual motivation	Sexual Impulsivity	-0.405	-0.06	0.013	-4.55	***
Intimacy	Sexual knowledge and attitude	0.058	0.079	0.078	1.007	0.31
Intimacy	Emotion Regulation	0.291	0.016	0.004	4.33	***
Intimacy	Sexual Impulsivity	-0.207	-0.024	0.011	-2.278	0.02
exual knowledge and attitude	Emotion Regulation	0.077	0.003	0.003	1.125	0.26
exual knowledge and attitude	Sexual Impulsivity	-0.616	-0.053	0.006	-8.417	***
Emotion Regulation	Sexual Impulsivity	0.033	0.071	0.436	0.163	0.8

components of personality and sexual motivation and sexual impulsiveness, the sexual dual control model can be used to explain the results (26); accordingly, the degree of sexual excitation depends on the individual response of two distinct neurophysiological systems (sexual excitation and sexual inhibition). It can be important to note that depending on the specific manifestations of sexual excitation and inhibition, the dual control model also makes predictions on dysfunctional and pathological conditions (27); in fact, some researchers have reported a positive correlation between sexual inhibition and risky sexual behavior, safe sex assertiveness and sexual sensation seeking (28); to explain this relationship, it can be said that people with a high score on the Sex Inhibition Scale may experience more risky sexual behavior for fear of

losing their sexual excitation.

The research results, in term of examining the effect of BIS, are consistent with the results of Rettenberger et al study (29). The research dealt with the effect of personality traits (BIS/BAS) on Hyper sexuality; Rettenberger et al. (29) also evaluated the relationship between sexual inhibition and excitation based on the dual control model and hyper sexuality; the results strongly supported the Dual control model to explain hyper sexuality, regardless of gender or sexual orientation.

Moreover, findings are consistent with the research that show CISB are associated with changes in sexual motivation; it shows that people with CISB show a change in neural activation that indicate their experience of sexual motivation and feeling rewarded by sexual stimuli may be very sensitive (30). Neuroendocrine evidence also suggests that sexual motivation and responses may be highly sensitive (31). This view is consistent with the notion that sexual motivation is a disordered basic appetite-driven; In addition, ICSB may be caused by cognitive disorders such as attention and inhibition. For example, according to results trauma to the involved areas of the brain in inhibition (amygdala, temporal lobe, prefrontal, frontotemporal) impairs sexual motivation and leading to hyper sexuality (32).

The results also show that sexual addiction is correlated with several personality traits. The results of a study, showed that neuroticism and agreeableness were each associated with sexual addiction (33). Some studies suggest that people with high levels of neuroticism, and negative moods, may engage in sexual addiction to reinforce or avoid negative emotions (33-34-35). People whose agreeableness score is low, are often unreliable, rude, manipulator, and have little concern for others. These personality traits are also common among people involved in risky sexual behavior (33).

There are other personality factors in people with sexual addiction symptoms, such as deficits in emotion regulation skills and an increase in negative emotions such as alexithymia, depression, and vulnerability to stress (35-36-37). Also, research results have linked sexual addiction to self-hostility; self-hostility is an aspect of shame and is usually characterized by severe self-criticism (37).

The results of this section contribute to our knowledge of the relationships between sexual motivation, sexual inhibition, and personality traits in ICSB. Even if it is obvious that irregular sexual behavior cannot be explained just by personality variables, the results more support the relationship between sexual problems, sexual and personality disorders.

About the relations that have been found between personality components and emotion regulation, researchers believe that many people experience and express positive and negative emotions throughout their lives. It has also been found that individuals express their thoughts, ideas, needs, and emotions in high-quality interpersonal relationships (38-39). People learn to identify, label, and regulate their emotions through emotional socialization (40). Researchers have shown that there are relationships between unsupportive and supportive methods of emotion socialization and emotion knowledge, emotional competence, and emotion regulation strategies (41-42).The important point is that researchers believe personality traits are one of the most important personality traits that can not only be effective in choosing emotion socialization methods but also affect the effects of emotion socialization behaviors on the emotional development of individuals (40).

Baranczuk (43) in a meta-analysis showed that all personality traits were correlated with emotion regulation strategies; in short, high levels of neuroticism and low levels of extraversion, openness to experience, agreeableness, and conscientiousness were associated with more consistent low-level emotion regulation strategies and more inconsistent emotion regulation strategies.

Therefore, it can be argued that personality is the factor that constitutes the principle of individual resources of relatively stable personality traits; the base of all major personality traits are basic motivational systems (44); when we say that people can avoid possible consequences, or approach it (or do nothing), we are in fact referring to the pattern of cognition and behavior that makes sense in personality. Corr and Krupic (45) have explained the details of the received reinforcement nature by individuals receive are determined by their approach/avoidance goals. The approach coping strategies mostly are considered to cause fewer symptoms, less distress, and more well-being. In

contrast, avoidant coping strategies, especially cognitive avoidance, and emotional evacuation are more associated with poor psychosocial outcomes.

Attachment style

According to Bowlby's theory of attachment (46), the secure attachmentis a reliable source when needed, and an essential element to form mental health and social adjustment. Shaver et al (47) examined extensive evidence, showing that people with a secure attachment style are more optimistic about life and have a less catastrophic assessment of threats and risks. They are also more confident in their ability to deal with threats and challenges and tend to use more constructive and effective emotion-regulating strategies. In addition, securely attached people, by managing threatening events or evaluating them well, can accept their emotions and feelings, share them freely with others, communicate with them and experience them without distortion.

In contrast, the disorder of secure attachment, and the subsequent formation of what Main (47) called secondary attachment strategies, in two dimensions of anxious and avoidant attachment styles, are risk factors for emotional problems and psychological pathology (47). However, there are consistent traits in anxious attachment styleand avoidant attachment styleat birth; this means that they constantly adapt the child's behavior to the behaviors of attachment figures. But these two styles, in later relationships, show inconsistent function when they are rewarding, and help to feel well-being (48). In addition, these insecure attachment strategies cause the repeated activation and suppression of negative emotions, and the constant reliance on distorted mental representations of oneself, and others, leading to impaired physical and mental health.

Troyer and Greitemeyer (49) showed that secure attachment style predicts cognitive empathy through the re-evaluation variable, and secure attachment style improves cognitive empathy through the re-evaluation variables, repression, and mind rumination. Finally, researchers argue that people with a secure attachment style can experience a higher level of cognitive empathy due to the re-evaluation of their emotions.

Research results show that attachment disorders can inhibit emotional and psychosexual development, and lead to inadequate identity and incompatible strategies to meet the need for intimacy. Anxious attachment to others is forming, while the formation of attachment identity. Learning that sharing personal and confidential information, and trusting others when necessary, is insecure, works consistently when there is no access to caregivers. These avoidant strategies inhibit the formation of intimate relationships with others by perpetuating insecure attachment styles in adulthood. Insecure identity and anxious attachment style, for a person with ICSB, leads to sex assertiveness (either alone or with a partner), which in turn, reduce anxiety, fear, loneliness, distrust or moving away from distrust and having a safe distance from others (50-51). These strategies are used as a means to regulate emotions when increasing reactivity(52). In this regard, Kotera and Rhodes (53) showed an anxious attachment style relationship between traumatic childhood experiences, and sex addiction, as well as acted as a mediator between narcissism and sex addiction.

Sexual motivation

The results are consistent with Mizrahi et al (54); Mizrahi et al. (54) showed that sexual expression in men reduced specific insecurities in the relationship with oneself and one's spouse. Conversely, the expression of sexual desire in women inhibits the reduction of specific insecurities in the relationship with the spouse, while the expression of intimacy in women predicts the reduction of specific insecurities in the relationship with the spouse. So, various gender-related processes underlie attachment in men and women. They believe that sexual desire and emotional intimacy may be especially important to improve relationships in the early years; because they may indicate the goals of the relationship (55). Similarly, sexual motivation and intimacy may serve as a basis for a change in insecure attachment style, which is normal in the early stages of marital relationships (56).

We can also refer to the dual control model (26); people with a relatively low desire for sexual excitation, and at the same time, a high desire for sexual inhibition, are more likely to experience a decrease in sexual excitation or trauma in sexual response compared to people with a desire to sexual excitation and natural inhibition. On the other hand, people with a high and low desire for sexual excitation and sexual inhibition, respectively, are more likely to have hyper sexuality behaviors (27); previous research has supported this

hypothesis, at least in part, by providing evidence on the higher score of people with hyper sexuality on sexual excitation scales (9-57). However, some researchers have reported a positive correlation between sexual inhibition and risky sexual behavior, safe sex assertiveness, and sexual sensation seeking (28); an explanation for this relationship is that people with an active sexual inhibitory system may experience riskier sexual behavior for fear of losing their sexual excitation.

If we consider sexual excitation as equivalent to the BAS in the dual control model, the result of the present study is consistent with the results of Rettenberger et al. (29); their results strongly supported the dual control model of motivation and sexual inhibition to explain hyper sexuality, regardless of gender or sexual orientation.

The results, in terms of the effect of sexual excitation on ICSBs, are consistent with the results of studies that show ICSBs are associated with changes in sexual excitation; that there are changes in neural activation of people with ICSBs, suggesting their experience of sexual excitation, and the feeling of reward from sexual stimuli may be very sensitive (30). In particular, gonad hormones, are involved in compulsive sexual behavior, and anti-androgenetic medicines have been associated with decreased sexual motivation and compulsion (58-31). It is consistent with the notion that sexual excitation is a disordered basic appetite drive (12). ICSBs may also be caused by cognitive dysfunction, such as attention and inhibition. For example, according to the previous studies trauma to the involved areas of the brain in inhibition impairs sexual motivation and leading to hyper sexuality (59-32). Similarly, Schmidt et al. (60) showed that there is more left amygdala gray matter in CSB individuals, and resting state functional connectivity between the left amygdala seed and bilateral dorsolateral prefrontal cortex. Eventually, the researchers argue that CSB is associated with elevated volumes in limbic regions relevant to motivational salience and emotion processing, and impaired functional connectivity between prefrontal control regulatory and limbic regions. In this regard, evidence suggests that people with ICSBs experience biological vulnerabilities that It is associated with impaired sexual motivation, memory, and cognitive regulation (e.g., attention control, inhibition, irritability) and emotion regulation (eg, stress response, mood problems, impaired emotion regulation) (61-52).

Intimacy

Some researchers consider ICSBs as an identity and intimacy disorder, prominent biological factors include imperfections in self-management (impulse control, etc.) and predisposing factors for emotional dysregulation, prominent psychological factors include defects in identity and intimacy, as well as prominent effects of family, social, and environmental factors, includes family, social and environmental messages and values regarding sexual orientation and intimacy (2).

On the other hand, in clinical experiences, people with ICSBs often report that in close relationships have failed to use effective emotion regulation strategies or effective interpersonal processes. Since much of the social learning on emotions, interpersonal and interpersonal regulation is shaped and modified by the family system, understanding dynamicity of the family system and received messages on sexuality and intimacy should be considered in the treatment of ICSBs (62).

Sexual Knowledge and Attitude

The result is consistent with the results of studies that according to them, lack of sexual knowledge is one of the main reasons for the increase in AIDS, sexually transmitted diseases, unwanted pregnancies (due to risky and out of control sexual behavior), abortion, and dissatisfaction in married life (63). However, the research of Sulak et al. (64) showed that there is a gap between sexual knowledge and one's learning, and their connection with real life, and it can be said that people's real-life is based only on learning and knowledge are not acquired, and people's attitudes, which are mixed with emotions and feelings, are more effective; researchers believe that one of the mechanisms influencing sexual attitudes on couples' sexual satisfaction and dissatisfaction is the alignment or mismatch of their sexual attitudes. Couples' sexual attitudes can increase their sexual satisfaction and marriage by creating and strengthening couple commitment to limited sex to the marital relationships (65-66-67). Conversely, mismatching the couple attitudes toward sexual commitment and intimate relationships can play a decisive role in sexual

satisfaction by creating or exacerbating negative emotions. This role can affect their relationship both directly and by modifying the relationship between sexual attitude and sexual satisfaction of couples(68). Research results show that increasing sexual awareness and knowledge and modifying people's beliefs and feedback on sexual issues are effective to improve marital problems (69-70). In this regard, Nouranipour et al. (71), in their research showed that there is a significant positive correlation between knowledge and sexual attitude, and marital and sexual satisfaction. In another study, Besharat and Rafizadeh (72) showed that there was a significant positive correlation between sexual knowledge and attitude, and sexual satisfaction, and marital adjustment. Baron et al. (73) also showed that sexual training or marital counseling, in other words, enhancing the level of sexual knowledge plays an important role in family health, preventing sexually transmitted diseases, reducing sexual violence in the family, creating a positive attitude towards sex, and as a result, the couple's sexual satisfaction.

Emotion Regulation

We found that, regulating emotion does not affect ICSBs; but some studies emphasize the importance of regulating emotion as a continuous process in the development and maintenance of mental health and prevention of mental disorders (74-75-76). Some researchers believe that ICSBs lead to changes in regulating emotion; in this regard, Goodman (77) considers two functions for sexually addictive behaviors: producing pleasure and reducing internal emotional distress; behavioral addictions, therefore, cause rewards or euphoric due to dopamine secretion in the brain (positive reinforcement), as well as negative reinforcement or relief of undesirable emotional states. Adams and Robinson (78) claimed that sexual addiction was a means by which people seek to escape from emotional distress and seek a sense of calm; they also believe that regulating emotion should be considered in the treatment of sexual addiction. Moreover, the results of Mineret al. (79) showed that different mechanisms trigger sexual behavior with a sexual partner and masturbation; this finding supports the conceptualizing hyper sexuality behaviors as an adaptation strategy to emotional excitation. On the other hand, Reid (37) found that men with excessive sexual desire experience significantly more negative emotions, and fewer positive emotions than the control group. Self-directed hostility alone was the strongest predictor of hyper sexuality among clinical specimens.

In addition, neuroimaging studies have demonstrated that people with ICSBs show more activity in areas of the cerebral cortex that are involved in attention, inhibition, and reward (30-60-80-81-82). Such biological differences confirm the hypothesis that impaired cognitive regulation is the main effect of ICSBs. Research has also shown that ICSBs are associated with impaired regulate emotion; for example, people with ICSBs exhibit irregular behaviors in response to stress (83). In addition, impaired regulating emotion may also occur through impaired catecholamine transmission. Dopamine, which is associated with the reward and fluctuation of positive emotions, is indirectly involved in the onset of sexual behavior (84-85). Serotonin and opioids may also play a role in ICSBs. Serotonin reuptake inhibitors often used to treat depression and anxiety (86-87) and opioid agonists such as Naltrexone (88-89), have also been effective to reduce the symptoms of ICSBs.

It can be concluded that despite not confirming the role that emotion regulation plays in changing ICSBs here, and according to the results of many studies that sexual behaviors have been shown to play an important role in emotion regulation, and neuropsychological data that support this approach examine the relationship between emotion regulation components and ICSBs, given the role of biological neurological variables in an independent study is necessary.

Conclusion

The results showed the sensitivity increase of the BAS and BIS has a negative effect on secure attachment; while the effect of the FFFS on secure attachment is positive. BIS and FFFS have a positive effect on avoidant attachment, and the effect of the FFFS on anxious attachment is positive. Anxious and avoidant attachment styles cause Emotional dysregulation. Sexual motivation has positive effect on intimacy, positive effect on sexual knowledge and attitude, negative effect on the emotion regulation and negative

effect on ICSBs. Intimacy facilitates the emotion regulation mechanism, and its increase is associated with a reduction in ICSB. Increasing sexual knowledge and attitude decrease ICSBs. The proposed model can explain the relationships between the occurrence of CISBs and ten effective factors both directly and indirectly, including: personality (BAS, BI S, and FFFS), attachment style (secure, avoidant, anxious), sexual motivation, intimacy, knowledge, and sexual attitude and emotion regulation.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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