

Sexual dream and family relationships in frequent sexual dreamers and healthy volunteers

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Abstract

Early life family relationships affect the sexuality in adulthood, and these influences might be reflected in sexual dreams. The present study was designed to investigate the exact associations between family relationships and sexual dream experience. We therefore invited 62 frequent sexual dreamers (dreamers) and 104 healthy volunteers (controls) to answer the Sexual Dream Experience Questionnaire (SDEQ) and the Family Relationship Questionnaire (FRQ). Compared to controls, dreamers scored higher on all SDEQ factors and sexual dream frequency, higher on FRQ Paternal Abuse, and lower on FRQ General Attachment and Maternal Freedom Release. In controls, Paternal Abuse was associated with Joyfulness, Maternal Dominance with Aversion, and Maternal Abuse with dream frequency (-). In dreamers, Paternal Abuse was associated with Aversion, Bizarreness and dream frequency, and Maternal Freedom Release with Aversion (-). In conclusion, there were pronounced associations between sexual dreams and family relationships in frequent sexual dreamers. Paternal Abuse in particular was associated with sexual dream experience. Adverse family relationships might induce frequent sexual dream occurrence, and family therapy or early intervention of Paternal Abuse might alleviate the negative sexual dream experience.

Abbreviations: CI = confidence interval, DSM-5 = the Diagnostic and Statistical Manual of Mental Disorders, 5th ed, EMBU = the Egna Minnen av Barndoms Uppfostran, FRQ = the Family Relationship Questionnaire, MANOVA = multivariate analysis of variance, MSE = mean square error, PBI = the parental bonding instrument, SDEQ = the Sexual Dream Experience Questionnaire.

Keywords: continuity hypothesis, family relationship, sexual behavior, sexual dream

1. Introduction

Sexual dream is one kind of typical dreams described in human. More than 70% of people have experienced sexual dreams in general population.^[1-3] According to a Canadian study, sexual experience was the second most-frequent themes in dream, after the one of being chased or pursued.^[1] Contents of sexual dreams are mainly sexual intercourse, flirting, kissing or sexual fantasies,^[4,5] and negative ones such as aggression-involving and rape.^[6]

Daily dreams are interpreted as reflections of one's waking states and concerns, and psychological variables according to the continuity hypothesis.^[7,8] Dreams did not simply depict waking-

life traits, but rather further elaborated the elements formed during waking life.^[9,10] Therefore, sexual dreams might manifest an individual's sexuality during waking time in general. Investigators found that waking-life sexual fantasies were direct-positively related to sexual dreams.^[11] In a Canadian university student sample, sexual interactions in dreams were positively correlated with sexual fantasy, sexual daydreaming, and orgasmic experience during waking time.^[6] In female participants, the realistic romantic problems including jealousy and infidelity were reflected in sexual dreams.^[12] In male participants, Yu found that sexual behaviors only predicted part of sexual dream contents, which revealed that sexual dreams compensated for waking-state sexual behaviors.^[13] Thus, recent literature and the continuity theory suggest that sexual dreams implicitly reflect people's attitudes towards sexuality, sex-related issues, or waking-state sexual behaviors, and fulfill individual's sexual desires which are not completely satisfied at waking-state.

Attitudes towards sexuality or sexual behaviors are affected by multidimensional factors, such as endocrine hormone,^[14] alcohol consumption,^[15] physical fitness,^[16] mental state,^[17] sexual knowledge,^[18,19] and religion.^[20] Moreover, previous results have indicated that family factors contribute to sexual attitudes or behaviors.^[21,22] For instance, familial intactness, close parent-adolescent relationship, and parental monitoring were protective factors from early sexual behaviors.^[23] Parental communication about sexual norms of love and respect was negatively associated with the permissive sexual attitudes.^[24] In addition, family functions such as the positive affective response, communicating, problem solving, and behavioral controlling between family members were associated with the knowledge and attitude toward sexuality in adolescents.^[25] On the contrary, adolescents' bad attitude toward sexuality was related to the poor interpersonal relationships with family members^[26]; and individuals' self esteem and body image could be damaged by

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paternal/maternal overprotection.^[27] Besides, childhood maltreatment was negatively related to women's sexual or relationship satisfaction.^[28] Early negative familial experiences were strongly related to many kinds of sexual disorders,^[29] and the abnormal parent-child bonding and detachment in early life led to deviant sexual fantasies in sexual offenders.^[30] Therefore, parent-child attachment, parental support, and parental encouragement might lead to individuals' positive sexual experiences in later life, while parental overcontrol or abuse might lead to emotionally negative ones. As daytime activities are reflected in dreams, the sexual dream experience might be affected by family relationships accordingly.

However, up to date, the exact relationship between family factors and sexual dream experience is still unclear. One reason for the literature scarce might be the inadequate quality of sexual dream and family relationship measurements. Batteries such as the Typical Dream Questionnaire^[31] and the Dream Content Questionnaire^[32] have helped to describe the sexual activities or thoughts in dreams, but they are not comprehensively structure-validated. Comparatively, the Sexual Dream Experience Questionnaire^[33] has been developed as a structure-validated measure which covers four scales of Joyfulness, Aversion, Familiarity, and Bizarreness, and a scale measuring sexual dream frequency. As to the family relationship, questionnaires such as the Parental Bonding Instrument (PBI)^[34] and the Egna Minnen av Barndoms Uppfostran (EMBU)^[35] were commonly used to measure parental rearing experiences. But another instrument, the Family Relationship Questionnaire (FRQ),^[36] is structure-validated and measures both positive and negative influences by either parent. Therefore, SDEQ and FRQ might be used to elucidate the relationships between sexual dream experience and family relationships.

In the present study, we have invited both frequent sexual dreamers and normal healthy volunteers to answer SDEQ and FRQ. We have hypothesized that:

1. frequent sexual dreamers scored significantly higher on SDEQ Joyfulness, lower on SDEQ Aversion or Bizarreness, higher on FRQ General Attachment, Freedom Release or Encouragement, and lower on FRQ Abuse or Dominance; and
2. in frequent sexual dreamers, General Attachment, Freedom Release or Encouragement was associated with Joyfulness, and Abuse or Dominance with Aversion or Bizarreness.

2. Materials and methods

2.1. Participants

We enrolled 104 healthy participants (controls: 38 women and 66 men; mean age, 22.19 years \pm 3.88 SD, age range, 18–35 years) who reported 1 to 3 times of clearly-remembered sexual dreams annually, and 62 frequent sexual dreamers (dreamers: 22 women and 40 men; mean age, 23.19 \pm 5.07, age range, 18–39) who reported no less than 3 times of sexual dreams monthly. All participants were recruited from either host university, community, or local psychiatric clinics. No differences of age ($t=1.43$, $P=.16$, 95% confidence interval [CI]: $-0.38-2.38$) or gender ($\chi^2=0.02$, $df=1$, $P=.89$) were found between the two groups. Participants had received basic education and had no difficulty understanding or completing the test. They were also confirmed not to have confounding factors such as schizophrenia, schizoaffective disorder, prior history of head injury, alcohol

or tobacco abuse, psychoactive substance abuse, sexual dysfunction, paraphilic disorder, or any other medical condition influencing sexual function via a semi-structured interview by an experienced psychiatrist according to the *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.^[37] In addition, participants were free from drug or alcohol, and from viewing pornographic videos or movies, for at least 72 h prior to the test. The study protocol was approved by the Medical Ethics Committee of School of Public Health, Zhejiang University and all participants gave their written informed consent.

2.2. Instruments

Participants were asked to complete the following questionnaires in a quiet room.

1. The Sexual Dream Experience Questionnaire (SDEQ)^[33] has one item measuring the sexual dream frequency and 32 items measuring four factors of dream experience (8 items each factor): Joyfulness describing the happiness and satisfaction of sexual dreams, Aversion the guilt, shame, fear, and discomfort towards sexual dreams, Familiarity the normal scenes appeared in sexual dreams, and Bizarreness the unusual behaviors or thoughts in sexual dreams. Participants were asked to rate the items using the Likert type scale (1-very unlike me, 2-moderately unlike me, 3-somewhat unlike and like me, 4-moderately like me, and 5-very like me). The internal alphas of each SDEQ factor in the present study were shown in Table 1.
2. The Family Relationship Questionnaire (FRQ)^[36] is designed to evaluate the core features of the experienced family relationships up to 16 years old. It has 43 items including General Attachment (5 items; describing children's affectionate dependence on family members), Paternal/Maternal Encouragement (5 items each; describing the positive incentives, harmonic environment and spiritual/material needs offered by parents), Paternal/Maternal Abuse (5 items each; describing the physical or psychological maltreatment and criticism from parents), Paternal/Maternal Freedom Release (5 items each; describing the autonomy of decision-making or daily behavior given by parents), and Paternal/Maternal Dominance (4 items each; describing the parental authority in family affairs). Each FRQ item was rated using the same 5-point Likert scale as in SDEQ. The internal alphas of each FRQ factor in the present study were also shown in Table 1.

2.3. Data analyses and statistics

Data analyses were conducted using Statistical Product and Service Solutions for windows (SPSS, version 19.0, IBM, Armonk, NY). Multivariate analysis of variance (MANOVA) was applied to the 4 SDEQ or 9 FRQ factors in two groups. The independent Student t test was also employed to look for the potential group differences. The annual sexual dream frequency was also analyzed by the t test. Cohen's d was calculated for each comparison to show the effect size. The partial correlation test of SDEQ (including dream frequency) and FRQ factors was applied in each group. Given the proven effect of age and gender on sexual dreams,^[38,39] we controlled age and gender as covariates in the partial correlation test to rule out their possible influences. Moreover, multiple linear regression analysis (stepwise method and adjusted for age and gender) was employed respectively in

Table 1

Internal alphas (N=166) and scale scores (mean±SD) of the Sexual Dream Experience Questionnaire and the Family Relationship Questionnaire in frequent sexual dreamers (Dreamers, n=62) and healthy volunteers (Controls, n=104).

	Internal alphas	Dreamers	Controls	95% confidence interval	Cohen's <i>d</i>
SDEQ					
Joyfulness	0.88	21.56±7.95*	17.83±6.85	1.43–6.04	0.51
Aversion	0.82	14.31±6.10*	12.54±4.27	0.02–3.52	0.35
Familiarity	0.74	26.00±5.68*	23.18±6.23	0.91–4.73	0.47
Bizarreness	0.74	12.16±4.57*	9.91±2.98	0.96–3.54	0.62
Frequency		38.76±27.97*	2.01±0.76	29.65–43.85	2.15
FRQ					
General Attachment	0.67	15.60±3.84*	17.20±4.22	−2.90 to −0.31	−0.39
Paternal Encouragement	0.82	11.95±5.13	13.39±4.91	−3.03 to 0.14	−0.29
Paternal Abuse	0.83	9.19±4.58*	7.64±3.60	0.20–2.90	0.39
Paternal Freedom Release	0.86	17.02±5.39	18.56±4.56	−3.09 to 0.01	−0.32
Paternal Dominance	0.69	11.71±4.25	10.94±3.81	−0.49 to 2.03	0.19
Maternal Encouragement	0.71	15.63±4.60	16.03±3.91	−1.72 to 0.92	−0.10
Maternal Abuse	0.79	8.47±3.32	7.42±3.77	−0.10 to 2.19	0.29
Maternal Freedom Release	0.83	17.63±4.73*	19.02±3.97	−2.74 to −0.04	−0.33
Maternal Dominance	0.69	11.56±3.69	10.47±3.87	−0.11 to 2.30	0.29

FRQ = the Family Relationship Questionnaire, SDEQ = the Sexual Dream Experience Questionnaire.

* $P < .05$ vs control group.

each group to search for the relationships between SDEQ and FRQ factors, taking FRQ factors as potential predictors for SDEQ ones. A P value $< .05$ was considered to be significant. In order to avoid the chances of Type I error, the absolute value of coefficient larger than 0.25 was considered as significant for correlation, and the absolute beta value larger than 0.25 for prediction.

3. Results

There were significant differences on SDEQ scale scores between the two groups (Pillai's Trace = 0.14, Wilks' $\lambda = 0.86$, Hotelling's Trace = 0.16, $F [4, 161] = 6.43$, $P < .001$, partial $\eta^2 = 0.14$). Dreamers scored significantly higher than controls did on the Joyfulness ($t = 3.20$, $P = .002$), Aversion ($t = 2.01$, $P = .05$), Familiarity ($t = 2.91$, $P = .004$), Bizarreness ($t = 3.46$, $P = .001$), and dream frequency ($t = 10.35$, $P < .001$). Meanwhile, there were significant differences of FRQ scores between the two groups (Pillai's Trace = 0.11, Wilks' $\lambda = 0.89$, Hotelling's Trace = 0.12, $F [9, 156] = 2.15$, $P = .03$, partial $\eta^2 = 0.11$). Dreamers scored significantly higher than controls did on the Paternal

Abuse ($t = 2.28$, $P = .03$), but lower on General Attachment ($t = -2.45$, $P = .02$) and Maternal Freedom Release ($t = -2.03$, $P = .04$) (Table 1).

In controls, Paternal Abuse ($r = .27$, $P = .01$) was correlated with joyfulness, and maternal dominance ($r = .27$, $P = .01$) with Aversion. In Dreamers, Paternal Abuse ($r = .28$, $P = .03$) and Maternal Freedom Release ($r = -.32$, $P = .01$) were correlated with Aversion, Paternal Abuse ($r = .46$, $P < .001$) with Bizarreness, and Paternal Abuse ($r = .34$, $P = .01$) with dream frequency (Table 2).

Considering the prediction of SDEQ factors by the FRQ factors, adjusted R^2 were ranged from 0.07 to 0.22 in controls, and from 0.10 to 0.22 in dreamers. In controls, maternal abuse ($\beta = -0.28$; $t = -2.99$, $P = .003$) predicted dream frequency ($F [1, 102] = 8.94$, mean square error (MSE) = 4.76, $P = .003$; adjusted $R^2 = 0.07$). While in dreamers, Maternal Freedom Release ($\beta = -0.30$; $t = -2.53$, $P = .01$) predicted the aversion ($F [2, 59] = 7.19$, MSE = 222.16, $P = .002$; adjusted $R^2 = 0.17$), Paternal Abuse ($\beta = 0.49$; $t = 4.29$, $P < .001$) predicted the Bizarreness ($F [1, 60] = 18.43$, MSE = 299.95, $P < .001$; adjusted $R^2 = 0.22$), and Paternal Abuse ($\beta = 0.33$; $t = 2.73$, $P = .01$) also predicted dream frequency

Table 2

Partial correlation (adjusted for age and gender) between the Sexual Dream Experience Questionnaire and the Family Relationship Questionnaire in frequent sexual dreamers (Dreamers, n=62) and healthy volunteers (Controls, n=104).

FRQ	Dreamers					Controls				
	Joyfulness	Aversion	Familiarity	Bizarreness	Frequency	Joyfulness	Aversion	Familiarity	Bizarreness	Frequency
General Attachment	0.11	−0.11	0.20	0.01	−0.04	−0.00	0.02	0.09	−0.07	0.03
Paternal Encouragement	0.15	0.08	0.12	0.12	0.03	0.07	0.20*	0.17	−0.04	−0.06
Paternal Abuse	0.21	0.28*	0.11	0.46*	0.34*	0.27*	0.12	−0.11	0.15	−0.25*
Paternal Freedom Release	−0.16	−0.18	0.08	−0.05	−0.03	−0.06	0.04	0.13	−0.01	−0.02
Paternal Dominance	0.24	0.22	0.15	0.11	−0.01	0.03	0.03	0.02	−0.00	−0.14
Maternal Encouragement	0.03	−0.01	0.04	−0.11	−0.01	0.15	0.17	0.13	−0.01	0.11
Maternal Abuse	0.07	0.01	−0.12	0.14	0.01	0.09	0.16	−0.13	0.13	−0.25*
Maternal Freedom Release	−0.03	−0.32*	0.06	−0.18	−0.17	−0.04	−0.01	0.01	−0.03	0.02
Maternal Dominance	−0.09	0.06	0.01	−0.07	−0.02	0.25*	0.27*	0.04	0.19	0.05

FRQ = the Family Relationship Questionnaire.

* $P < .05$; absolute value of coefficient larger than 0.25 was bolded for clarity.

Table 3
Stepwise multiple linear regression predicting the Sexual Dream Experience Questionnaire factors (including dream frequency) with the Family Relationship Questionnaire factors (adjusted for age and gender) in frequent sexual dreamers (Dreamers, n=62) and healthy volunteers (Controls, n=104).

	Dreamers		Controls	
	Adjusted R^2	β (B, SE), predictors	Adjusted R^2	β (B, SE), predictors
Joyfulness	–	–	0.22	0.21 (0.41, 0.17) paternal abuse* 0.19 (0.33, 0.16) maternal dominance*
Aversion	0.17	–0.30 (–0.38, 0.15) maternal freedom release*	0.09	0.21 (0.18, 0.08) paternal encouragement* 0.25 (0.28, 0.10) maternal dominance*
Familiarity	–	–	–	–
Bizarreness	0.22	0.49 (0.49, 0.11) paternal abuse*	–	–
Frequency	0.10	0.33 (2.03, 0.74) paternal abuse*	0.07	–0.28 (–0.06, 0.02) maternal abuse*

* $P < .05$. B=unstandardized coefficient; SE=standard error; $|\beta|s > 0.25$ were bolded for clarity.

($F [1, 60]=7.45$, $MSE=5270.13$, $P=.01$; adjusted $R^2=.10$) (Table 3).

4. Discussion

To the best of our knowledge, it is the first comprehensive study addressing associations between family relationships and sexual dream experience in frequent sexual dreamers. Compared to healthy volunteers, frequent sexual dreamers scored higher on all SDEQ factors including dream frequency, higher on FRQ Paternal Abuse, and lower on FRQ General Attachment and Maternal Freedom Release, which partly confirmed our first hypothesis. Paternal Abuse and Maternal Freedom Release significantly predicted some sexual dream experience factors in frequent sexual dreamers, which also partly accorded with our second hypothesis.

Generally, sexual pleasure or emotional satisfaction during sexual dreams was frequently reported by men^[13] and women.^[40] There are also some cultural-specific differences on sexuality, for instance, East-Asian people tended to have higher sexual guilt than their Western counterparts.^[41,42] Therefore, our Chinese dreamers might have aversive feelings during waking time due to the conservative sex values despite that they might have pleasant sexual dreams. These explained our results that dreamers scored higher on both Joyfulness and Aversion factors. In addition, dreamers had higher Familiarity, which was in line with that these individuals were familiar with persons involved in sexual dreams.^[6] Previous results have also demonstrated that bizarreness enhanced recall of dream contents,^[43] which might account for the higher Bizarreness in our dreamers who also had frequent dream recalls.

Dreamers scored lower on General Attachment in our study, which agreed with that individuals with insecure interpersonal attachment were likely to report dreams.^[44] Frequent dreamers also had higher Paternal Abuse, which could be explained by that physical abuse by fathers increased adolescents' level of internalizing behavior problems^[45] and that these problems increased dream recalls.^[46] Moreover, our dreamers scored lower on Maternal Freedom Release, which might be due to that mothers communicated with children more often than fathers about sex and mothers promoted sexual abstinence.^[47,48] While individuals' idea of sexuality was suppressed, it might be persistent in dreams instead.^[49]

In our controls, Paternal Abuse was associated with Joyfulness, which might be due to that healthy individuals had positive sex-related self-cognition, and this cognition offset the negative

influence of abuse on sexual functioning and satisfaction.^[50] Besides, Maternal Dominance was associated with Aversion, which was in line with that maternal psychological control was related to anxiety through adolescent emotional dysregulation,^[51] and that anxiety led to negative dream affect.^[52] Furthermore, Maternal Abuse was negatively associated with dream frequency, which accorded with that maternal abuse longitudinally predicted adolescents' depressive symptoms in early adulthood,^[53] and that depression was linked with the loss of sexual interest or arousal.^[54]

In our dreamers, Paternal Abuse was associated with Aversion, Bizarreness, and dream frequency. Previous studies showed that paternal physical abuse predicted adolescent sexual victimization.^[55] Sexual abuse increased psychosocial problems^[56] and sexual aversion,^[57] and victims had increased compulsive sexual activities in spite of their traumatic belief that sex was bad.^[58] Based on the continuity hypothesis, these waking-state cognitions might extend to dreams, and our dreamers might recognize their highly-recurrent sexual dreams repulsive and weird. In addition, Maternal Freedom Release was negatively associated with Aversion, which agreed with that adolescents talked about sex more often with their mothers^[48] and that the parental support was related to sexual satisfaction.^[59]

However, there were several design flaws in the present study. First, sample sizes of two groups were relatively small, and the current results need to be replicated with larger samples, especially of frequent sexual dreamers. Secondly, participants' daytime sexual behaviors or attitudes were not recorded, which might help explain our results. Thirdly, our study design was cross-sectional, and a longitudinal design might further detail the family relationship involvement in sexual dreams. Notwithstanding, we have found the enhanced sexual dream experience and adverse parent-child relationships in frequent sexual dreamers. Especially, Paternal Abuse was a robust predictor of unpleasant but frequent dream experience.

Parent-child issues, especially sex-related ones, in early family life could influence individual's later-life sexuality reflected in sexual dreams. Therefore, family therapy and especially early life intervention of father-child relationship to reduce the negative affect of frequent sexual dreams.

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