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Abstract

Purpose: Sexual desire (SD) refers to individual differences in the internal force which determines sexual functions. This study investigated the relationship between openness to experience and intelligence with SD. The role of weight and age in moderating the relation between openness and intelligence with SD was also examined.

Methods: A total of 168 participants were collected using grab sampling from 3 universities in Tehran, Iran (n=168; age range: 18 to 35; Mean = 23; Standard Deviation = 3.58). All participants completed measures of intelligence (Raven's Progressive Matrices), Openness to experience (measured through the NEO), and sexual desire (Hurlbert Index of SD).

Results: The data of the study were analyzed by using Pearson's correlation coefficient and regression. The results found no significant relationship between openness to experience and intelligence with SD. Moreover, sex and weight did not moderate the relationship between openness and intelligence with SD. Findings from the current study provide empirical support for the consistent link between intelligence and SD at older ages. There is also a curvilinear relationship between weight and SD.

Conclusions: These findings suggest that intelligence or openness would not have an influence on SD, and only age plays a role in moderating the association between intelligence and SD.

Introduction

Sexual desire is an intrinsic motivational force (DeLamater & Sill, 2005) or a mental state which determines sexual activity (Carvalho & Nobre, 2011; Wood et al., 2006). Sexual desire has three dimensions including drive, wish, and motivation. Drive is the biological dimension of the physiology of glands, nerves, and anatomy. Wish is the cultural dimension that reflexes the values, rules and meanings of sexual expression. Motivation is the

psychological dimension is affected by the personal mental states such as happiness or sadness, and interpersonal states like mutual love, inconsistency, disrespect, extramarital, and length of relationship (Levine, 2003). Sexual desire is the most sexual experience of men and women (Regan & Atkins, 2006). A popular traditional linear model of sexual desire is the sexual response cycle beginning with desire and then arousal, orgasm and finally ending with resolution (Basson, 2000; Levine, 2003).

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Openness to experience is one of the Big Five personality traits (McCrae, 1990) which means the width, depth and permeability of consciousness that needs increasing experiences (McCrae & Costa, 1997a). Openness includes active imagination, aesthetics, interest in internal emotion, variety seeking, and curiosity (Costa & McCrae, 1992; McCrae & Costa, 1997b; McCrae, 1993, 2007b). It associates with mental health (Malouff et al., 2005; Steel et al., 2008), Creativity (Feist, 1998; George & Zhou, 2001; McCrae, 1987), crystal intelligence (Geary, 2005; Moutafi et al., 2005), sexuality (Donnellan et al., 2004; McCrae, 1994; McCrae & Sutin, 2009) and social perception (McCrae & Sutin, 2009; Sneed et al., 1998; Staudinger et al., 1998). Sexual desire is intertwined with the whole personality (Chalichman, 1990). People with a high rate of openness experience more sexual arousal, and they hold a more liberal attitude toward sex (Rempel & Baumgartner, 2003). Although Eysenck (1976) discussed the relationship between personality characteristics and sexuality and suggested some hypotheses about the relation between personality traits and sexuality, little is known about the relationship between openness to experience and sexual desire. Research on the extent to which openness is associated with sexuality has inconsistent findings. For example, one research has demonstrated that women with high openness report increased sexual satisfaction (Donnellan et al., 2004). Though, another research showed that openness is not associated with sexual satisfaction in women (Heaven et al., 2000). This study demonstrated that neuroticism and extraversion have a relationship with high-risk sexual behavior and openness to experience effects on this relationship indirectly (see Schmitt, 2004).

The meaning of intelligence is based on culture (Scribner, 1975), so defining it is controversial (Legg & Huter, 2007). Wechsler (1939) explained intelligence as a global capacity to do goal-oriented activities, logical thinking, and adapt to the environment. The nature of intelligence is biological and rational (Piaget, 1999). Bühler (1933) differentiates between three stages of targeted behavior: instinct, training and intellect. Real intelligence appears in the intellect stage in which an individual discovers the environment with insight and contemplation, so

the invention is the biological result of intellect. Intelligence as an important factor is associated with some variables like sexuality. For example, according to Greengross and Miller (2011) intelligence is associated with sexual desire and sexual satisfaction. DeMartino (2013) also claims that intelligent women report more sexual drive and orgasm, but Hopcroft (2006) believed that intelligence decreases the frequency of sex. Freud (1916) claimed that in the mental development period, powerful drives result in sexual interests while in adulthood sexual drives come into superiority. In fact, instead of repressing sexual drive, intelligent people directed it into curiosity and investigation, which are the substitution for sexual activity. In a study, the relationship between cognitive functions and sexuality was evaluated in older adults. The results showed that there is a significant positive relationship between cognitive functions and sexuality at this age (Hartmans et al., 2015), but the association between intelligence and SD is poorly understood.

There is a positive correlation between body image with sexual function and sexual satisfaction (Pujols, Meston & Seal, 2010; Weaver & Byers, 2006). Being also a strong predictor of understanding sexual attractiveness (Wade, 2000), body respect has a positive relationship with concerns about weight, sexual beauty and sexual desire (Basson, 2000). The lower the testosterone and self-respect in obese men and women, the lower sexual desire experienced (Melehan, & et al., 2006; Kinzl et al., 2001; Wang, & et al., 2011). The purposes of the current study are: 1) the examination of the likely relationship between openness to experience and intelligence with sexual desire; 2) evaluating the relationship between underweight, normal weight, overweight and obesity with sexual desire; 3) the specification of the moderator roles of weight and age in the relationship between openness to experience and intelligence with SD.

Method

Participants and procedure

The sample in this study was ungraduated students (94 females, 74 males) from age 18 to 35

($M = 35, 23, SD = 3.58$) from the universities of Tehran who participated as volunteers. They completed Raven's Progressive Matrices (RPM-60; Raven, 1941), openness to experience of NEO test (NEO; McCrae & Costa, 2004), and Hurlbert Index of Sexual Desire (HISD-25; Hurlbert, 2010). The incentives considered for the participants were the responses to sexual desire and IQ tests. For those who were curious about the result of the correlations in the project, the results were emailed.

Measures

Raven's Progressive Matrices (RPM)

The RPM is a 60-item scale with 6 to 8 choices considered as a nonverbal questionnaire measuring fluid intelligence (Raven, 1941). RPM assessed abstract reasoning in educational settings. It is used in measuring Spearman's g factor and as a reliable intelligence test (Carpenter et al., 1990). RPM has a good internal consistency, predictive validity and test-retest reliability (Burke, 1972; Raven, 1960, 2000).

NEO-FFI Personality Inventory (NEO-FFI)

The NEO-FFI is a 5-scale inventory including the openness to experience (McCrae & Costa, 2004). Openness consists of 12 items to which participants answer the Likert scale ranging from 1 (very uncharacteristic of me) to 5 (very characteristic of me). The overall score ranges from 12 (lower openness) to 48 (high openness). Cronbach's α for openness to experience was 84% (Rubinstein & Strul, 2007).

Hurlbert Index of Sexual Desire (HISD)

The HISD consists of 25 items to which subjects express agreement or disagreement on a five-point Likert scale from 0 (always) to 4 (never) (Hurlbert, 2010). The overall score ranges from 0 (lower desire) to 100 (high desire). The HISD has been shown to have internal consistency, content validity, good split-half and test-retest reliability (Miri et al., 2011; Teimourpour et al., 2014).

Body Mass Index (BMI)

The body mass index (BMI) is a formula assessing the body weight relative to height in humans (Obese, 1998). BMI was based on self-

reported height and weight classified into four groups: underweight, normal weight, overweight and obesity.

Results

Mean scores and standard deviations (SD) for all scales are presented for intelligence, openness and sexual desire in Table 1. As indicated, the score of students' intelligence is about 2 standard deviations more than the average intelligence.

Table 1. Mean scores and standard deviations on each scale of intelligence, openness, and sexual desire ($n = 168$)

Variable	Mean	S.D.
Intelligence	118.16	9.55
Openness to Experience	44.92	5.28
Sexual Desire	62.37	17.42

The Kolmogorov-Smirnov test showed the variables were normally distributed. Table 2 presents the Pearson product-moment correlations between measures of intelligence, openness, sexual desire and weight. As shown in table 2, no significant relations were discovered between intelligence and openness to experience with SD among university students.

Table 2. Pearson correlation coefficients between scores of intelligence, openness, sexual desire and weight ($n = 168$)

Variable	1	2	3	4
1. Intelligence	-			
2. Openness to Experience	.067	-		
3. Sexual Desire	.080	.106	-	
4. Weight	-.103	-.122	.022	-

Having entered moderators, sex and weight, our findings indicated that these variables did not play a role in moderating the associations between creativity and openness to experience with SD in the students.

In the end, concerning the role of age as a moderator in the relationship between intelligence and SD, our results indicated a significant positive correlation between intelligence and SD at older ages among students ($r = .352; p < .05$; see Table 3).

The Pearson product-moment correlation between underweight, normal weight, overweight

and obesity with SD is presented in Table 4. As indicated, there is a curvilinear relationship between SD and the 4 scales of weight. Therefore, there are negative relations between

underweight and obesity with SD. Positive relationships were also indicated between normal weight and overweight with sexual desire among the students.

Table 3. The relationship between intelligence and sexual desire in terms of age among university students (n = 168)

	Intelligence (age groups)		
Sexual desire	.063 (18-21)	.002 (22-25)	.352* (26-35)

Note. * $p < .05$

The results of the Pearson correlation coefficient revealed that there is no association between openness and intelligence with SD, but there are significant positive relationships between normal weight and overweight with SD and negative relationships between underweight and sexual desire. To evaluate the rate of

moderating effects of weight and age on the relationship between openness and intelligence with SD multiple regression analysis was performed. The results showed the moderating variables did not affect on the relationship between openness to experience and intelligence with sexual desire.

Table 4. The Pearson correlation between underweight, normal weight, overweight and obesity with sexual desire (n = 168)

	Underweight	Normal Weight	Overweight	Obesity
Sexual Desire	-.447*	.541**	.348*	-.623

Note. * $p < .05$, ** $p < .01$

Discussion

The current study found no relationship between openness and intelligence with sexual desire. These findings are consistence with previous studies (Bourdage et al., 2007; Halpern et al., 2000; Miri et al., 2011). A positive relation between intelligence and SD at older ages was found (26-35 years). Smart teens postpone sexual activities in order to achieve goals (Halpern et al., 2000). In general, cognitive strategies help people control appetite signs such as hyperresponsiveness to food cues and erotic stimuli (Demos et al., 2012). In the study of Hartmans et al (2015), the correlation between fluid intelligence and sexuality at old ages (mean age: 71) was positive. Based on this study, intelligent people, especially women with high fluid intelligence, perceived sexuality as an important thing in life. Inadequate emotional intimacy is a factor related to low sexual desire (Basson, 2001), and women, in the first place, experiencing sexual desire in the sexual relationship (Goldhammer & McCabe, 2011) shows that as women at older ages are more likely

to have sexual partner experience more sexual desire. From an evolutionary point of view, it can be probably said to have a better generation, intelligent people experience more sexual desire, but because of being goal-oriented and doing something important for humankind, they put sexual activity off.

Trapnell and Metson (1996) believed that sexual intrapersonal aspects like sexual imaginaries, sexual attitude and masturbation are associated with openness, but sexual interpersonal aspects such as sexual experience and number of sexual partners do not (as cited in Meston et al., 1998). In general, religious orientation has more effect on SD than openness to experience.

There is a positive relation between normal weight and overweight with SD, and a negative relationship between underweight and obesity with sexual desire. These findings are consistence with previous studies (Campbell et al., 2012; Esposito et al., 2007; Katznelson et al 1996; Smith, 2004; Warnock et al., 1997). Some previous studies (Han et al., 2011) indicated that overweight people experience lower sexual

desire, which is inconsistent with the current study. It can be mentioned that the sexual desire of these people could be a result of being fat or having muscles. Fatness by reducing the amount of testosterone, decreases sexual desire, on the other hand, having muscles help increase testosterone and ultimately increases sexual desire (Katznelson et al., 1996; Smith, 2004). Since obese women have lower sexual desire and women's sexual desire is based on the environment, it can be concluded that most problems of these women are rooted in the lack of self-esteem, unsatisfying relationships and collective stigmatization (Kinzl et al., 2001). Underweight people also have lower testosterone, that's why they experience less sexual desire (Campbell et al., 2012; Kratzik et al., 2007; Warnock et al., 1997). Using weight as a moderating variable did not impact the relationship between openness to experience and intelligence with sexual desire. In general, the more people access to satellite and foreign media, the more people report dissatisfaction with their body image (Ricciardelli, & et al., 2007). Easy availability of these media and easy accessibility of social networks, probably cause more unsatisfactory with body image. In the end, with these findings, we can prevent early sex in people, especially adolescents, by focusing more on sex education in people with lower intelligence.

Limitations

Using the available sampling method is one of the limitations of this study. Another limitation is whether the overweight comes from the fat or muscle because the fat decreases the amount of Testosterone and muscle increases it. The sample group was only university students which limit the generalization.

Conclusions

There was no relationship between openness to experience with sexual desire. The weight did not moderate the relationship between openness to experience and intelligence with SD. Age moderates the relationship between intelligence and sexual desire just at old ages (26-35). The association between weight and intelligence also

was evaluated which showed there was a significant positive correlation between normal weight and overweight with the SD, and a negative relationship between underweight and obesity was shown.

Conflict of interest

The author(s) declared no conflicts of interest concerning the research, authorship, and publication of this article.

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