The relationship between personality and sexual motivation: an investigation based on Cloninger's model in nonclinical Italian subjects

Rapporto tra personalità e motivazione sessuale secondo il modello psicobiologico di Cloninger in un campione di soggetti non clinici italiani

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SUMMARY. Background. The aim of this study was to investigate the relationship between personality and sexual motivation according to Cloninger's psychobiological model of the personality. **Methods.** Three hundred and ten volunteers recruited among the students of the University of Messina, Italy, participated in the study. All subjects underwent a psychometric examination with the following instruments: Temperament and Character Inventory (TCI) and Sex and the Average Woman (or Man; SAWM). **Results.** The best negative predictor of Sexual Excitement and Satisfaction was the temperamental dimension Harm Avoidance; as it regards character dimensions, Cooperativeness was the best negative predictor of Sexual Excitement, while Self-Directedness was the best positive predictor of Sexual Satisfaction. **Conclusions.** Overall, inhibitory aspects of the personality have deeper effects on sexual motivation than excitatory ones. The results of this research suggest the importance of studying the relationship between personality and sexual behavior. An integrative psychobiological approach to the study of sexual excitement and satisfaction may give a fundamental contribution to the assessment and psychological treatment of predisposing personality factors (like avoidant tendencies) involved in the development and persistence of sexual dysfunction.

KEY WORDS: personality, temperament, character, sexual excitement, sexual satisfaction, sexual motivation.

RIASSUNTO. Introduzione. Lo scopo del presente studio è stato quello di valutare la relazione tra la personalità e la motivazione sessuale secondo il modello psicobiologico di Cloninger della personalità nelle sue dimensioni del temperamento e del carattere. **Metodi.** Trecentodieci volontari, reclutati tra gli studenti dell'Università di Messina, hanno partecipato allo studio. A tutti i soggetti sono stati somministrati il Temperament and Character Inventory (TCI) e il Sex and the Average Woman (or Man; SAWM). **Risultati.** Il migliore fattore predittivo negativo delle dimensioni Eccitamento Sessuale e Soddisfazione Sessuale è risultato essere la dimensione temperamentale Evitamento del Pericolo; relativamente alle dimensioni del carattere, Cooperatività è risultato essere il più forte predittore negativo della dimensione Eccitamento Sessuale, mentre Autodirezionalità il più forte predittore positivo di Soddisfazione Sessuale. **Conclusioni.** I risultati evidenziano che gli aspetti inibitori della personalità, rispetto a quelli eccitatori, hanno effetti più significativi sulla motivazione sessuale. I dati ottenuti suggeriscono l'importanza della relazione tra personalità e comportamento sessuale. Un approccio psicobiologico integrato nella valutazione dell'eccitazione e della soddisfazione sessuali può fornire un contributo significativo ai fini della valutazione e del trattamento psicologico di quei fattori predisponenti di personalità, come le tendenze evitanti, coinvolti nello sviluppo e nella persistenza delle disfunzioni sessuali.

PAROLE CHIAVE: temperamento, carattere, eccitazione sessuale, soddisfazione sessuale, motivazione sessuale.

INTRODUCTION

The relationship between personality and sexual behavior has received an increasing attention in the last two decades because of the theoretical and practical implications of this topic. From an evolutionary psychology perspective it has been hypothesized that selection pressures have favored psychological mechanisms and personality traits by maximizing the adaptive expression of sexual behavior such as successful intrasexual competition, correct mate selection, successful conception or mate retention (1). Within this theoretical framework, the constructs of Sexual Excitement and Sexual Satisfaction – respectively the psychomotor stimulation elicited from a sexual incentive and the reward derived from sexual activities (2) – have a central role, because they are considered as two biological systems of sexual motivation that have evolved to reinforce and motivate personality traits and behaviors increasing the likelihood of sexual intercourse and the adaptive solution of events surrounding reproduction (3,4).

Some researchers interested in sexual behavior have taken into consideration these two different aspects of sexual motivation. Overall these studies suggest that sexual excitement is negatively correlated with the general tendency to experience negative affects (neuroticism) (5,6), to be able to resist impulses and temptations (conscientiousness) (7), to be altruistic and sympathetic to others (agreeableness) (8,9) and with intrinsic religious orientation (10-13); on the other hand, sexual excitement is positively correlated with the tendency to be outgoing and assertive (extraversion) (5,6), to be curious about both inner and outer worlds (openness to experience) (7) and with extrinsic religious orientation (10-13). Sexual Satisfaction results to be positively correlated with extraversion and negatively associated with neuroticism (14,15) while trait anger has no effects on both sexual excitement and satisfaction (16).

Most of this research has used the Five-Factor Model of personality (7) and the Eysenck's PEN-Model (17). This study was designed to explore and integrate relationships between personality, sexual excitement and sexual satisfaction according to another theoretical model: Cloninger's psychobiological model of personality (18). Following this model, personality is divided into temperament (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and character (Self-Directedness, Cooperativeness, Self-Transcendence); temperament dimensions are correlated with specific monoaminergic systems (19-21). Although it has been observed that Cloninger's dimensions are substantially covered by the Five-Factor Model (22), investigating sexual motivation according to Cloninger's model may give interesting insights into the study of personality correlates of sexual motivation, mainly because of its psycho-biological implications, as recent evidence suggested an association between sexual motivation and the monoaminergic systems (2).

Starting from the biological and psychological empirical correlates of Cloninger's model, some associations between the variables we studied were hypothesized. Harm Avoidance, which refers to the inhibition of behaviors to avoid danger or punishment, is positively correlated with neuroticism and negatively associated with extraversion, openness to experience (22) and erotophilia (23); also, Harm Avoidance is an important inhibitor of sexual arousal as it is associated with serotoninergic "punishment" or behavioral inhibition system (2,24). Consequently, a negative association with sexual motivation may be hypothesized. There is also reason to hypothesize a possible negative association between Persistence, which refers to reactions to achievement rewards, and both measures of sexual motivation because Persistence is correlated with conscientiousness (22) and with low basal noradrenergic activity of the brain system, a neurobiological system which fosters sexual excitation. Self-Directedness, which refers to the ability to adapt behavior in accordance with personal goals and values, should show a positive correlation with sexual motivation because it is a valid indicator of psychological well adjustment (25) which is – in turn – a good predictor of a satisfying sexual life (7); also, Self-Directedness shows a positive correlation with extraversion and a negative association with neuroticism (22). It is difficult to hypothesize other possible associations between sexual motivation and Temperament and Character Inventory (TCI) dimensions. From a psychological perspective, Novelty Seeking (searching for intense stimulation) and Reward Dependence (reactions to affective rewards) are positively associated with extraversion and openness to experience (22), which are correlated with sexual motivation; also Novelty Seeking is associated with the tendency to have more sexual partners (26) and more extradyadic dating and sexual involvement (27); on the other hand, from a neurobiological perspective, both Novelty Seeking and Reward Dependence are negatively associated with the dopaminergic and noradrenergic activity of the brain system which mediates sexual excitation (2). Cooperativeness (the degree to which a person identifies the self as a part of the society), and Self-Transcendence (the degree to which a person identifies the self as an integral part of

the unity of all things) show a positive correlation with openness and extraversion (22), which are correlated with sexual excitement, but Cooperativeness is also correlated with agreeableness, which is a negative predictor of sexual motivation, and it is also known that intrinsic religious orientation, a construct that is very similar to Self-Transcendence, is negatively associated with sexual excitement. Finally, we were also interested in exploring possible gender differences.

METHODS

Participants and procedures

Three hundred and ten volunteers (148 men and 162 women) recruited among the students of the University of Messina, Italy, participated in the study. Mean age of participants was 24.16 ± 2.67 years (range 19-30), median age was 24 years, quartiles were 22 (I), 24 (II), 26 (III) and 30 (IV). Use of Mann-Whitney test revealed that men and women did not differ significantly in age (U=10,252, p=0.166). Participants responded to advertisements placed on notice boards and on the university website. Psychology and medical students were excluded. The study was introduced to the participants as an investigation into heterosexuality and personality and subjects were asked to answer self-report questionnaires anonymously. All measures were administered under anonymous conditions. All the participants provided written informed consent after a full explanation of the protocol design which had been approved by the local ethics committee. The administration of questionnaires took place in groups of 25-50 subjects to ensure confidentiality, each group coming for a single session. Inclusion criteria were the absence of psychopathological conditions and the presence in the personal history of the subjects of both sexes of several acts of heterosexual intercourse. The Minnesota Multiphasic Personality Inventory (MMPI)-2 was used in order to exclude the presence of psychopathological conditions that could affect the reliability of the sample (28-30).

Measures

To consider socio-demographic variables, the participants were asked for general data about their age, sex, marital status, occupation, habitual residence, religion, and socio-economic status (determination of socio-economic status was based on income data). Three questions were specifically related to sexuality: at least one experience of sexual intercourse, age of the first act of sexual intercourse, frequency of sexual intercourse.

The TCI is a 240-item questionnaire with a true-false Likert scale (true = 2; false = 1) to assess individual differences in the basic dimensions of the Cloninger's psychobiological model of the personality (31). According to this model, personality is divided into temperament and character; the first one mainly refers to heritable, early-onset and preconceptual personality features involving individual differences in response to novelty (Novelty Seeking), danger or punishment (Harm Avoidance) and reward (Reward Dependence and Persistence). Variations in each of these dimensions are associated with different neurobiological systems. Novelty Seeking, which refers to the activation of behaviors, is correlated with low basal activity of the dopaminergic "incentive" or behavioral activation system (19); Harm Avoidance, which refers to the inhibition of behaviors to avoid danger or punishment, is associated with serotoninergic "punishment" or behavioral inhibition system (20); finally, Reward Dependence and Persistence, which refer to reactions to affective and achievement rewards, respectively, are associated with low basal noradrenergic activity of the brain system which is responsible for the acquisition of conditioned signals of reward (21). Conversely, character mainly refers to learned, late age-onset and conceptual aspects of personality; they are distinguished into three different dimensions according to the degree to which a person identifies the self as an autonomous individual (Self-Directedness), as a part of the society (Cooperativeness) or as an integral part of the unity of all things (Self-Transcendence).

The TCI has been applied on a variety of clinical and nonclinical populations and has shown good psychometric properties (31).

Sexual motivation was measured by the Italian version of the Sex and the Average Woman (or Man; SAWM) a questionnaire that assesses sexual attitudes and sexual behavior in nonclinical subjects (32). The instrument is composed of 11 scales with 159 questions requiring closed answers (yes/no). The questionnaire – which explores different domains of sexual behaviors – has been yet used to investigate the relationship between personality and sexuality in a variety of nonclinical populations (6,8,16,33), and has shown good psychometric properties (6).

For the purposes of this research we selected the Sexual Excitement and Sexual Satisfaction scales; the first scale refers to arousal in response to sexual stimuli and consists of 9 items measuring sexual arousal (such as "I get excited sexually very easily" or "Sometimes sexual feelings overpower me"); the second scale refers to the general satisfaction that a person derives from his/her sex life) and consists of 12 items (such as "I am satisfied with my sex life" or "Nothing is lacking in my sex life") measuring satisfaction derived from sexual life.

To further investigate sexual motivation, we also decided to explore the relationships between the TCI variables and the following four scales: Sexual Shyness (the discomfort, fear, and embarrassment felt in the presence of the opposite sex), Prudishness (the abstention from any kind of sexual manifestations, even the most contained ones), Sexual Disgust (a rather stronger expression of the same sentiment as "prudishness" scale; it refers to disgust of some sexual practices, even when loving the usual se-

xual partner); we decided to select these scales because they all imply a difficulty in expressing and living sexual motivation. Finally, the scale Neurotic Sex (the inability to achieve sufficient sexual gratification due to disturbing thoughts, emotions, and actions coming from sexual life) was selected as a generic measure of sexual adjustment. The scales we selected had acceptable levels of internal consistency (Cronbach's alpha coefficients between 0.80 and 0.87).

Statistical analysis

Before analyzing the data, the Kolmogorov-Smirnov test was applied to test for a normal distribution of the variables: Since distributions of measures were skewed (Harm Avoidance: z=2.8, p <0.0001; Novelty Seeking: z=2.7, p<0.0001; Reward Dependence: z=3.2, p<0.0001; Persistence: z=3.4, p<0.0001; Self-Directedness: z=0.7, p=0.642; Cooperativeness: z=1.9, p<0.002; Self-Transcendence: z=1.7, p<0.006; Sexual Excitement: z=1.8, p=0.003; Sexual Satisfaction: z=2.1, p=0.001; Sexual Shyness: z=7.05, p<0.0001; Prudishness: z=4.5, p<0.0001; Sexual Disgust: z=3.6, p<0.0001; Neurotic Sex: z=3.6, p<0.0001), it was decided to use both parametric and non-parametric approaches to be sure that the application of parametric techniques would produce similar results so that the data of this research could be reliably analyzed with parametric techniques. Consequently, association between TCI and sexual motivation scales were tested using both one-tailed Spearman and Pearson correlations (*r*), adjusting data for socio-economic status; we chose one-tailed correlations because we made specific predictions about the directions of the hypotheses. Given the elevated number of associations we tested, it was decided to modify the level of significance from a p value of 0.05 to a p value of 0.01, to lessen the risk of type 1 errors.

To examine the extent to which TCI dimensions make independent contributions to influencing Sexual Excitement and Sexual Satisfaction a multiple regression analysis was performed. Multiple regression analyses – variables were entered simultaneously – were also performed to examine the extent to which temperament and character made different independent contributions to sexual motivation, considering gender differences. Finally, one-tailed correlations were used to explore the associations between TCI scales and Sexual Shyness, Prudishness, Sexual Disgust and Neurotic sex.

RESULTS

Preliminary analyses

From the whole sample of 310 screened subjects, useful data were collected from 301 subjects aged between 19 and 30 years. The final sample consisted of 142 men (median 24 years) and 159 women (median 24 years). Nine subjects (6 men and 3 women) presented MMPI-2 pathological profiles indicating psychopathological conditions and were excluded from the study. Socio-demographic features of the sample are reported in **Table 1**.

Table 1. Socio-demographics of participants

Variable	N (%)
Age (years)	301 (100)
19-21	53 (17.6)
22-24	115 (38.2)
25-27	97 (32.2)
28-30	36 (12)
Range	19-30
Mean (SD)	24.16 (2.67)
Median	24.00
Occupational status	301 (100)
Employment	10 (3.3)
Unemployment	291 (96.7)
Income (euro)	301 (100)
12,000-18,000	55 (18.27)
19,000-25,000	140 (46.51)
26,000-31,000	74 (24.74)
31,000-37,000	32 (10.63)
Range	12,000-37,000
Mean (SD)	24,009 (6080.23)
Median	24000
Residence	301 (100)
Living with parents	239 (79.4)
Living with a family	9 (3.0)
Cohabiting	23 (7.6)
Sharing an accommodation	13 (4.3)
Living alone	11 (3.7)
Other	6 (2)
Age at first sexual relation	227 (100)
<14	8 (3.5)
15-16	30 (13.2)
17-18	95 (41.9)
>19	94 (41.4)
Frequency of sexual intercourse	227 (100)
>1 time/day	15 (6.6)
1 time/day	10 (4.4)
4-6 times/week	27 (11.8)
2-3 times/week	83 (36.6)
1 time/week	37 (16.3)
1 time/2 weeks	29 (12.8)
Rarely	21 (9.3)
Hardly never	5 (2.2)

Univariate and multivariate analyses between Temperament and Character Inventory and Sex and the Average Woman (or Man) questionnaires

The correlations between the scales are presented in **Table 2**, gender differences are shown in **Table 3**. No effect of socio-economic status was found since the degree and significance of the correlations did not change for this variable in the control. The hypotheses of the study, addressing the relationships between temperament, sexual excitement and sexual satisfaction were partially verified: use of Pearson correlations revealed no statistically significant association between Sexual Excitement and Satisfaction and Novelty Seeking; however the associations between Novelty Seeking and Sexual Excitement and Satisfaction were in the negative direction. As predicted, Harm Avoidance showed a negative correlation with both Sexual Excitement and Satisfaction while both Reward Dependence and Persistence were negatively associated only with Sexual Excitement. Predictions addressing the relationship between character and sexual excitement and satisfaction were also partially confirmed. Self-Directedness showed no association with Sexual Excitement but it was positively associated with Sexual Satisfaction; Cooperativeness was negatively correlated only with Sexual Excitement while Self-Transcendence was negatively correlated with both Sexual Excitement and Sexual Satisfaction. The application of Spearman's correlations produced similar results (**Table 2**).

As it concerns gender differences, no differences were found on Novelty Seeking scale (Sexual Excitement, z=0.85815, p=NS; Sexual Satisfaction, z=-0.60041, p=NS; test for the difference between two correlations, as in Uitenbroek) (34). Gender differences on Harm Avoidance reached a statistical significant level for Sexual Excitement (Sexual Excitement: z=1.57439, p<0.05; Sexual Satisfaction: z=-0.17398, p=NS) with women showing the stronger correlations. Reward Dependence and Persistence were negatively associated with

Table 2. Pearson and Spearman correlations and partial correlation (adjusting for socio-economic status) between Temperament and Character Inventory scales and sexual motivation

	Correlation (r)		Partial correlation (r)		Spearman correlation (r)	
	Sexual Excitement	Sexual Satisfaction	Sexual Excitement	Sexual Satisfaction	Sexual Excitement	Sexual Satisfaction
Temperament						
Novelty Seeking	-0.07	-0.007	-0.06	-0.002	-0.04	-0.009
Harm Avoidance	-0.21***	-0.14*	-0.20***	-0.14*	-0.24***	-0.16*
Reward Dependence	-0.13*	-0.03	-0.12*	-0.03	-0.11*	-0.02
Persistence	-0.14*	-0.06	-0.12*	-0.05	-0.13*	-0.06
Character						
Self-Directedness	-0.06	0.15**	-0.06	0.15**	-0.07	0.15**
Cooperativeness	-0.22***	-0.02	-0.21***	-0.02	-0.20***	-0.03
Self-Transcendence	-0.13*	-0.14*	-0.12*	-0.13*	-0.14*	-0.14*

*p<0.01; **p<0.005; ***p<0.001.

Table 3. Pearson correlations between Temperament and Character Inventory scales and sexual motivation for males and females

	Male correlations (r)		Female correlations (r)	
	Sexual Excitement	Sexual Satisfaction	Sexual Excitement	Sexual Satisfaction
Temperament				
Novelty Seeking	0.04	-0.03	-0.06	0.04
Harm Avoidance	-0.04	-0.13	-0.22***	-0.11
Reward Dependence	-0.04	-0.05	-0.14*	-0.08
Persistence	-0.06	-0.04	-0.16*	-0.06
Character				
Self-Directedness	-0.02	0.21**	-0.19**	0.09
Cooperativeness	-0.16*	0.05	-0.21***	-0.07
Self-Transcendence	0.02	-0.18**	-0.14*	-0.08

*p<0.05;**p<0.01; ***p<0.005; ****p<0.001.

Sexual Excitement only in females, although gender differences did not reach a statistically significant level for both scales (Reward Dependence: Sexual Excitement, z=0.77778, p=NS; Sexual Satisfaction, z=0.25832, p=NS; Persistence: Sexual Excitement, z=0.86862, p=NS; Sexual Satisfaction: z=0.17191, p=NS). As it concerns Self-Directedness, it showed a positive association with Sexual Satisfaction only in males while the significant negative correlation with Sexual Excitement was found only for females; however there were no statistically significant differences between males and females for this scale (Sexual Excitement: z=0.91076, p=NS; Sexual Satisfaction: z=-0.52209, p=NS). No statistically significant gender differences were found for Cooperativeness (Sexual Excitement: z=0.44398, p=NS; Sexual Satisfaction: z=1.03016, p=NS). Finally, Self-Transcendence was negatively correlated with Sexual Excitement in females and with Sexual Satisfaction in males, but gender differences were found only on Sexual Satisfaction (z=2.24758, p=0.0123) but not on Sexual Excitement (z=1.37972, p=NS).

Further investigations were executed to analyze gender differences. Regression analyses showed that temperament is a good predictor of female sexual excitement ($F_{4.154}$=2.883, p<0.05) and satisfaction ($F_{4.154}$=2.489, p<0.05) while character is a good predictor of female sexual excitement ($F_{4.154}$=2.723, p<0.05) and an excellent predictor of male sexual satisfaction ($F_{4.137}$=6.835, p<0.0001). Finally, the multiple regressions predicting Sexual Excitement and Sexual Satisfaction from TCI dimensions showed that the effect of temperament on Sexual Excitement is prevalently explained by the temperament dimension Harm Avoidance (t=-3.076, p<0.005, standardized beta =-0.356) while the effect of character dimension by Cooperativeness (t=-3.000, p<0.001, standardized beta =-0.067). There are no other statistically significant predictors of Sexual Excitement. The effect of temperament on Sexual Satisfaction is again explained by the temperament dimension Harm Avoidance (t=-2.543, p<0.01, standardized beta =-0.292) while the effect of character dimension by Self-Directedness (t=3.711, p<0.0001, standardized beta =0.312). The other dimensions do not act as statistically significant predictors of Sexual Satisfaction.

Further parametric correlations between TCI scales and Sexual Shyness, Prudishness, Sexual Disgust and Neurotic Sex revealed that both Self-Directedness and Cooperativeness had a negative association with Neurotic Sex, Shyness and Prudishness (**Table 4**).

DISCUSSION

The main objective of this research was to analyze personality correlates of sexual excitement and satisfaction according to Cloninger's psychobiological model of personality; gender differences were also analyzed.

The results addressing the relationships between temperamental dimensions and sexual motivation suggested that the neurobiological framework of TCI variables allows a valid prediction of sexual motivation, confirming that the most convincing characteristics of Cloninger's psychobiological model were the correlations between personality dimensions and the activity in monoaminergic systems (22).

From a psychological point of view, this result is congruent with studies underlining that extraversion and openness to experience (22) are related to sexual desire, and with studies suggesting that, on the opposite, fearful/avoidant tendencies may be the targets of effective psychotherapeutic treatment of Hypoactive Sexual Desire Disorder (36,37). Based on these evidences, we can consequently suggest that the psychological treatment of avoidant tendencies may also be a possible target in nonclinical subjects showing low sexual desire. Given the strong association between se-

Table 4. Pearson correlations between Temperament and Character Inventory scales and selected Sex and the Average Woman (or Man) scales

	Sexual Shyness	Sexual Prudishness	Sexual Disgust	Neurotic Sex
Temperament				
Novelty Seeking	0.00	0.03	-0.01	-0.03
Harm Avoidance	-0.10*	0.00	-0.09	-0.04
Reward Dependence	-0.09*	-0.04	-0.07	0.06
Persistence	-0.13*	-0.05	-0.05	-0.05
Character				
Self-Directedness	-0.30****	-0.13**	-0.10*	-0.21****
Cooperativeness	-0.23****	-0.15***	-0.08	-0.16**
Self-Transcendence	0.03	0.03	-0.08	0.04

*p<0.05;**p<0.01; ***p<0.005; ****p<0.001.

rotonin and harm avoidance, it may be possible that lessening avoidant tendencies through psychological interventions may have the same – or at least similar – neurobiological consequence as drugs in decreasing serotonin levels: enhancing sexual desire by weakening the serotoninergic behavioral inhibition system.

As it regards the other temperamental dimensions, Reward Dependence and Persistence showed a negative association with Sexual Excitement but not with Sexual Satisfaction; these results are consistent with studies suggesting that agreeableness and conscientiousness are negative predictors of sexual desire (7,8,9) but, interestingly, they also suggest that although individuals who search for continuous affective or achievement reward show a low tendency to engage in sexual activities, they are nevertheless able to take pleasure and to be satisfied with their sexual lives. Novelty Seeking showed a negative nonsignificant correlation with both Sexual Excitement and Satisfaction; these weak correlations may be explained by the measure we used: the SAWM does not make any distinction among subjective, physiological and behavioral aspects of sexual motivation.

The predictions of our research regarding the association between Self-Directedness and sexual behavior were partially confirmed: Self-Directedness resulted, in fact, the strongest positive predictor of sexual satisfaction confirming that the adaptive expression of sexual life is strongly correlated with psychological adjustment (7); the link between Self-Directedness and psychological well being is also showed by the negative association between Self-Directedness and negative aspects of sexual behavior like Sexual Shyness, Sexual Prudishness and Neurotic Sex. Furthermore, Cooperativeness had a negative association with Sexual Excitement while Self-Transcendence was negatively correlated both with Sexual Excitement and Satisfaction. These results confirm that those people who share a strong interest toward others or toward spirituality are less interested in sexual activities (8-13); in particular, while being cooperative did not influence sexual satisfaction, being engaged in spirituality had a deeper negative effect on sexual behavior, influencing both excitement and satisfaction. As a further demonstration that Cooperativeness seemed not to be a personality trait impairing sexual behavior, the results of this research have showed that Cooperativeness – along with Self-Directedness – was negatively correlated with uncomfortable dimensions of sexual behavior such as Sexual Shyness, Sexual Prudishness and Neurotic Sex.

Regarding gender differences, regression analyses showed that temperament was a significant predictor of both female sexual excitement and satisfaction, while character dimensions were the better predictors of female sexual excitement and male sexual satisfaction. This result is apparently contrasting with studies underlying how women's sexual desire is more malleable than men's desire in response to socio-cultural and situational factors (38). We think that to solve this question it may be important to distinguish between sexual arousal and sexual arousability (39). Women's sexual arousal (the amount of sexual motivation) may be more determined by neurobiological factors as documented by studies showing that women's sexual desire fluctuates with the menstrual cycle (40,41) and that sexual desire is influenced by the neuropeptide oxytocin which is also responsible for women's affective bonding (42). Nevertheless, arousability (the willingness to become sexually involved in response to situational cues while sexual aroused) may depend on situational and cultural cues.

Further research with more refined measures of sexual motivation is needed to add new insight into the field of research concerning the relationship between personality and sexual motivation.

Undoubtedly this study has several limitations. The research sample consisted of undergraduates taken from an urban area of southern Italy without relevant psychopathological conditions: it would be useful to determine whether these findings apply to individuals with definite sexual dysfunctions or psychopathological disorders. Furthermore, the SAWM is not a refined measure of the different aspects of sexual motivation: more valid psychometric measures of sexuality should be used to better understand the relationship between personality and sexual motivation. Furthermore, this study has a correlational design, so that the possibility of the effect of third variables cannot be excluded; finally, it is not possible to know the direction of causality between the variables we have studied.

Beyond these limitations, the results of this research suggest the importance of evaluating the relationship between personality and sexual behavior. In particular, we think that an integrative psychobiological approach (43) to the study of sexual excitement and satisfaction may give a fundamental contribution to the assessment and psychological treatment of those predisposing personality factors (i.e.: avoidant tendencies) involved in the development and persistence of sexual dysfunctions.

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