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ABSTRACT

Female anorgasmia, which the DSM-5 defines as a marked delay, marked infrequency or absence of orgasm, occurs in the orgasm phase of sexual response being the second most frequent sexual dysfunction in women. It is widely accepted that drugs usage has devastating consequences on sexual response. The aim of this study was to analyse the relationship between drug use and anorgasmia and sexual satisfaction, and other variables that can affect sexual response. An *ex post facto* study was conducted. Two groups of women were selected through cluster sampling from 28 drug rehabilitation centres belonging to the same institution throughout Spain: drug-using females (*n* = 129) and non-drug-using females (*n* = 129). They completed questionnaires about sexual function, sexual satisfaction, anxiety and sexual attitudes. Female drug users presented higher percentages of anorgasmia (13.18%>2.33%), sexual dissatisfaction (34.10%>3.87%), sexual avoidance (47.28%>17.05%), infrequency (59.68%>44.96%) and less erotic foreplay (3.10%>0.77%) compared to the control group. Moreover, higher scores were obtained in state anxiety (23.82 > 14.56) and trait anxiety (30.93 > 16.95), while lower scores were obtained in erotophilia (84.93 < 95.81). Female drug users reported significant impairments in sexual satisfaction, orgasm and sexual attitudes, concurrently with greater infrequency, avoidance and anxiety compared with the control group of non-drug-user females.

Introduction

Female anorgasmia, which the DSM-5 (American Psychiatric Association, 2013) defines as a marked delay, marked infrequency or absence of orgasm, occurs in the orgasm phase of sexual response being the second most frequent sexual dysfunction in women (Adam et al., 2015). Data on the prevalence of anorgasmia in regular population are inconsistent. In these prospective study, the prevalence ranges between 5 and 59% (Espitia, 2018). In the Spanish population, prevalence data finds that 36.68% of premenopausal women are anorgasmic (Lopez-Olmos, 2016).

The European Drug Report 2016 shows that 24.8% of the European population uses cannabis, 5.1% cocaine, 3.9% MDMA, 3.6% amphetamines, and 8% other drugs. According to the report of the *Plan Nacional Sobre Drogas* (Delegación Del Gobierno., 2017), the prevalence of substance abuse in the Spanish population aged between 15 and 64 years old is the following: 77.6% alcohol, 40.2% tobacco, 31.5% cannabis, 18.7% depressant psychoactive drugs, 8.9% cocaine, 3.8% stimulant

psychoactive drugs, and 0.6% heroin (Sendino & Álvarez, 2017). Drugs have been widely used in all cultures to eliminate fatigue, as an inspiration for artists, for sporadic recreational use, etc. Nowadays, the main reason is for recreational purposes and in many cases to improve sexual satisfaction by increasing sexual arousal (Calafat et al., 2008, 2010). Another common use of drugs is to gain self-confidence and improve attitudes to approach and interact with potential sexual partners (Abrahamson, 2004). According to the experience of practitioners from drug rehabilitation centres, another reason is to inhibit anxiety in sexual relationships (Calafat et al., 2008).

It is widely accepted that drugs usage has devastating consequences on sexual response (Del Río, 2016; Mishra & Srivastava, 2018). Drug users average a larger number of sexual dysfunctions than their non-user counterparts (Çalişkan et al., 2019; Montejo et al., 2018), and these sexual dysfunctions do not disappear during the withdrawal period (Jiann, 2008; Vallejo-Medina & Sierra, 2013).

Previous studies suggest that drugs use, particularly in women, can lead to: orgasm delay, decrease in sexual sensations, decrease in sexual desire, dissatisfaction, sexual arousal disorder, anorgasmia, menstrual disorders and vaginal dryness, among other symptoms (Cabello-Santamaría, 2010; Nekoolaltak et al., 2017). Although the relationship between drugs use and female sexual dysfunction is poorly understood, the study of Anil et al. should be highlighted. These authors analysed the sexual response of 40 women who drank alcohol (Anil et al., 2017), finding that 55% of them had low sexual desire; 52.5% were unable to reach orgasm and 50% expressed sexual dissatisfaction.

Consequently, it is believed that people with numerous sexual dysfunctions (i.e. women using drugs) show lower interest in sexual partners due to their fear and distress caused by the potential failure during intercourse, thereby generating negative attitudes towards sexuality (Carpintero & Fuertes, 1994; Fisher et al., 1988). Presumably, people feeling more confident with their relationships (because of their lower number of sexual dysfunctions) tend to search for sex more actively and they are more open to new experiences. These people show more positive attitudes towards sexuality. Because of the scarcity of objective data in this area, it becomes necessary to test these assumptions.

Regarding drugs use, anxiety is one of the most evident symptoms during the withdrawal syndrome caused by deprivation of addictive substances. Moreover, previous studies have shown a correlation between higher anxiety levels and the use of substances in general (Merikangas et al., 1998; Scorzelli & Chaudhry, 2009). Additionally, if anxiety is analysed in relation to withdrawal treatment, some authors reported that higher levels of anxiety before the onset of substance rehabilitation treatment than at the end of this treatment (O'Leary et al., 2000). Furthermore, it is noteworthy that the influence of anxiety on sexual dysfunctions is an issue described in several studies (Cihan, 2019; Toates, 2009).

The aim of this research is to assess the effect of addictive drugs in female sexual response, especially their influence on the orgasm. Drug influence on anxiety and sexual attitudes will be analysed in the context of the following four hypotheses: 1. Female users of addictive substances will show a higher rate of anorgasmia and worse sexual response than female non-users. 2. Female drug users will show higher anxiety levels. 3. Female drug users will show more negative attitudes towards sexuality. 4. The incidence of anorgasmia is predictable according to the variables analysed in this study.

Method

Participants

According to the classification proposed by Del et al. (2018), the present investigation is considered within the category of ex post facto study. We designed a transversal methodology with an analytical purpose by using non-probability convenience sampling with a retrospective approach. Due to the

low prevalence of female drug users, a multicentric study was necessary to obtain a representative cohort with statistical strength.

All women from this cohort were extracted and compared with a similar group of non-drug user females (n = 129) with an equivalent socio-economic status, mostly including unskilled workers or unemployed supported by government social subsidies or family assistance. The drug-using group was made of patients actively following a drug rehabilitation programme. To analyse the sequelae of drug use in the sexual response, the female drug users were in drug abstinence. Drug-using females averaged 34.71 ± 8.18 years of age, ranging from 18 to 54 years old. Initiation of drug usage was estimated to be at 25.2 years of age, with a period of 9.51 years prior seeking treatment. Relapse was frequent as 40.31% of women had previously enrolled in another drug-rehabilitation program. Non-drug-using females were age-matched, as they averaged 34.36 ± 8.39 years of age, ranging from 20 to 59 years old.

The sociodemographic data included in Table 1 showed non-significant differences (t-test). Female drug users were asked about the type of drugs they used before detoxification treatment. The results are shown in Table 1.

Table 1. Sociodemographic data (N = 258) and type of drug.

	Drug Using (n = 129)		Non-Drug Using (n = 129)		
	%	n	%	n	p
Marital Status					
Married	41.86%	54	55.81%	72	ns
Single	34.88%	45	32.56%	42	ns
Divorced	23.26%	30	11.63%	15	ns
Education					
Primary	18.61%	24	7.75%	10	ns
Secondary	37.21%	48	27.91%	36	ns
Vocational training	34.88%	45	21.70%	28	ns
University	9.30%	12	42.64%	55	ns
Employed	30.23%	39	60.47%	78	ns
Drug					
Cocaine	43.41%	56			
Alcohol	27.13%	35			
Heroin	3.10%	4			
Cannabis	3.10%	4			
Stimulant drugs	2.33%	3			
Depressant drugs	0.78%	1			
Cocaine and alcohol	9.30%	12			
Cocaine and heroin	7.75%	10			
3 or more substances	3.10%	4			

Note: ns = non-significant.

Instruments

Three questionnaires were administered to the study participants. The first one was the Golombok Rust Sexual Satisfaction Index (GRISS), which assesses the sexual response in heterosexual men and women. The questionnaire was validated by Rust & Golombok, and includes 9 subscales (Rust & Golombok, 1986) and it has been validated in Spanish version (Cabello-Santamaría et al., 2020). The questionnaire was concurrently validated using as external criteria those reported and standardised by 88 experts from the Sexual Dysfunction Clinic of the Maudsley Hospital, London. U.K. The reliability of the questionnaire was adequate (Cronbach´s alpha =.94, for the male scale; and Cronbach´s alpha = .87, for the female scale). We processed data from the anorgasmia, dissatisfaction, infrequency, avoidance and non-sensuality scales included in the questionnaire to demonstrate the formulated hypotheses.

The Sexual Opinion Survey questionnaire (SOS) (Carpintero & Fuertes, 1994), measures the dichotomy erotophobia-erotophilia, i.e. the reaction to sexual stimuli is assessed using a continuum from a negative pole (erotophobia) to a positive pole (erotophilia). Thus, people who score high in erotophobia will tend to respond with more negative attitudes to sexual stimuli, identifying them in a negative way and trying to avoid these stimuli. In contrast, people who score high in erotophilia will have the opposite behaviour, meaning that they will respond with more positive attitudes to sexual stimuli and therefore will seek sexual stimulation. Cronbach´s alpha was calculated for both samples with a result of .82 for drug-using females and .83 for non-drug-using ones.

The State and Trait Anxiety questionnaire (STAI) (Spielberger et al., 1986) was specifically designed to measure anxiety levels. It contains two assessment scales to evaluate two independent concepts of anxiety. State anxiety is a temporary emotional condition characterised by subjective feelings of tension and apprehension. Trait anxiety is defined as a stable anxiety feeling that makes people experience situations as threatening. Cronbach´s alpha for female drug users was .89 for the trait scale and .92 for the state scale, while for female non-users it was .90 for the trait scale and .92 for the state scale.

Procedure

The study was approved by the Ethics Committee of the University of Almeria (Spain) and conducted in accordance with the principles of the Declaration of Helsinki and the International Conference on Harmonisation Tripartite Guidelines for Good Clinical Practice. In order to be included in the study, participants had to be of legal age and should have had a sexual partner for more than six months. The exclusion criteria included active medical conditions; administration of psychiatric medication; or engagement in a same-sex relationship, because the questionnaire does not include this possibility.

Data analysis

Descriptive statistics for the different variables of interest were calculated. The assumption of normality was verified by the Kolmogorov-Smirnov test. Finally, Pearson's correlation, one way ANOVA and linear regression were applied to determine the predictive value of the anorgasmia variables. All calculations were performed using SPSS© software IBM© Statistics Version 19.

Results

Descriptive statistics of the two samples were calculated (see Table 2), showing that the female drug-using group obtained significantly higher scores in the GRISS scales, indicating a higher possibility of

Table 2. Descriptive data and differences between groups.

	Drug Using (n = 129)			Non-Drug Using (n = 129)			
	M	SD	D (%)	M	SD	D (%)	ρ^a
GRISS							
Anorgasmia	5.27	3.1	17(13.18)	3.05	2.23	3 (2.33)	0.00
Dissatisfaction	5.95	3.78	44(34.10)	3.86	1.92	5 (3.87)	0.00
Infrequency	3.90	2.31	77(59.68)	3.06	1.84	58 (44.96)	0.00
Avoidance	3.98	3.52	61(47.28)	1.64	1.93	22 (17.05)	0.00
Non Sensuality	3.74	3.24	4(3.10)	1.91	2.27	1 (0.77)	0.00
STAI							
State	23.82	12.58		14.56	8.99		0.00
Trait	30.93	11		16.95	9.06		0.00
SOS	84.93	20.33		95.81	16.11		0.00

Note: D = people who have obtained a dysfunctional score on the questionnaire; [a]T of Student; *p <.01.

suffering a sexual dysfunction. The transformation of the raw score following the suggestions of the questionnaire's authors (Rust & Golombok, 1986) showed that the percentage of dysfunctional participants was higher in females who had been consuming addictive substances (see Table 2). Furthermore, those in the drug-using group obtained higher scores in both state and trait anxiety, and lower scores in the SOS. These results indicate that female drug users are more erotophobic than non-users.

The results met the acceptance criteria for normality (female drug users .22; female non-users .05), so parametric tests were applied. In this case the independent t-test was used, showing that differences were statistically significant (see Table 2).

Table 3 shows the descriptive data on drug withdrawal time of the group of women who use drugs. The average time is of 8.85 months, with a standard deviation of 12.69, being the minimum time of 1 month and maximum of 120 months. It is observed that the time without consumption is relatively short, given that the average does not even reach a year. For the analysis, women users of drugs were grouped into three groups, depending on the time they spent without using addictive substances when they participated in the study. The groups created were the following: from 1 to 4 months, from 5 to 12 months, and more than 12 months. Table 3 shows the average scores obtained in the research questionnaires. It is observed that the differences in the scores in anxiety and in the SOS questionnaire are significant (using one-way ANOVA), but not the scores in the GRISS questionnaire. The Tukey *post hoc* test reported that the group of more than 12 months and the group of 1 to 4 months showed significant difference in the anxiety state. In the SOS score showed significant difference in the group of 5 to 12 months and the group of more than 12 months.

Table 3. Scores and time of abstinence.

	1–4 months		5–12 months		+ 12 months			
	M	SD	M	SD	M	SD	F	p
GRISS								
Anorgasmia	5.25	3.22	5.43	2.91	5.07	3.25	0.057	ns
Dissatisfaction	5.49	3.78	6.84	3.62	5.47	3.89	1.645	ns
Infrequency	3.91	2.53	4.20	2.02	3.43	2.28	0.888	ns
Avoidance	3.95	3.77	4.45	3.56	3.33	2.93	0.359	ns
Non Sensuality	3.76	3.28	3.95	3.31	3.37	3.15	0.013	ns
STAI								
State	27.33	12.95	20.16	10.66	22.77	13.14	4.088	0.01
Trait	34.15	10.15	30.50	9.62	25.67	12.50	9.784	0.00
SOS	84.09	19.25	88.34	21.13	81.47	21.00	5.761	0.00

Note: F = ANOVA; ns = non-significant.

The results analysed in female users are presented in Table 4, divided by type of substance used. As the groups do not have the same number of participants, the results must be interpreted with caution. The ANOVA test was performed based on the type of substance consumed, where it was not found significant differences

Before carrying out a multiple lineal regression analysis, correlations were calculated within the female user group, the questionnaires scores and age variables, in order to decide which ones would be included in the final regression model. The results are presented in Table 5. It can be observed that anorgasmia was positively correlated with the variables infrequency, dissatisfaction, non-sensuality and avoidance.

The multiple linear regression was conducted using the introduction method. The model explained the 34.10% of anorgasmia variance ($\Delta R2 = 0.34$). The F-value (17.564; $p < .000$) revealed a statistically significant relationship between anorgasmia and the variables of the model (infrequency, dissatisfaction, non-sensuality and avoidance). Table 6 shows the data for the regression

Table 4. Average and standard deviation of the variables according to the drug used.

	Anorgasmia		Dissatisfaction		Infrequency		Avoidance		Non Sensuality		State anxiety		Trait anxiety		SOS	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Cocaine (n = 56)	4.98	3.32	5.23	3.84	3.54	2.25	3.57	2.83	3.43	2.82	28.38	18.27	28.38	10.18	85.50	18.27
Alcohol (n = 35)	5.94	2.83	7.09	3.91	4.03	1.99	4.00	4.26	4.03	3.85	32.51	20.40	32.51	10.47	85.06	20.40
Heroin (n = 4)	3.50	1.73	5.25	3.10	4.25	3.30	2.00	2.31	3.25	3.20	30.75	8.88	30.75	16.15	99.75	8.88
Cannabis (n = 4)	7.00	2.45	4.50	2.52	3.25	1.26	3.25	1.84	2.25	1.26	32.50	12.19	32.50	9.57	85.00	12.19
S. Drug (n = 3)	5.67	5.51	9.67	2.52	7.00	1.73	3.33	1.53	2.00	2.00	35.33	40.05	35.33	4.51	80.67	40.05
DD (n = 1)	1.00	-	6.00	-	8.00	-	3.00	-	0.00	-	35.00	-	35.00	-	90.00	-
CA (n = 12)	5.25	3.31	6.00	3.57	3.50	2.84	5.83	4.00	4.92	3.82	33.42	30.94	33.42	13.38	87.42	30.94
CH (n = 10)	5.90	2.18	6.70	3.65	5.30	2.11	5.90	4.65	5.30	3.33	36.20	16.76	36.20	12.60	73.10	16.76
3 or more (n = 4)	2.75	1.89	3.25	2.36	2.50	2.08	2.50	1.91	2.25	1.50	26.50	18.35	26.50	14.08	85.00	18.35

Note: S. Drug = Stimulant drugs; DD = Depressant drugs; CA = Cocaine and alcohol; CH = Cocaine and Heroin; 3 or more = 3 or more substances; SOS = Sexual Opinion Survey.

Table 5. Pearson's correlations for the study variables in the drug-using group (n = 129).

Variable	Age	Avoidance	Infrequency State anxiety	Dissatisfaction Trait anxiety	Non SOS		Sensuality		
Anorgasmia	0.036	0.366**	0.525**	0.457**	0.406**	0.136	0.097	−0.154
Age		0.056	0.009	0.177*	0.120	−0.058	0.063	−0.005
Infrequency			0.478**	0.162	0.339**	0.096	0.052	−0.056
Dissatisfaction				0.511**	0.443**	0.147	00.195*	−0.118
Non Sensuality					0.420**	0.148	.104	−0.169
Avoidance						0.297**	0.226*	−0.191
Sate anxiety							0.636**	−0.109
Trait anxiety								−0.061

Note: SOS = Sexual Opinion Survey; **ρ <.01; *ρ <.05.

Table 6. Data of the multiple linear regression.

	B	SE	ß	t	ρ	B for the 95% CI
Constant	1.825	0.493		3.700	0.00	0.849/2.802
Dissatisfaction	0.223	0.079	0.271	2.827	0.00	0.067/0.379
Non Sensuality	0.227	0.084	0.238	2.720	0.00	0.062/0.393
Infrequency	0.205	0.113	0.153	1.824	0.07	−0.017/0.428
Avoidance	0.118	0.074	0.134	1.593	0.11	−0.029/0.266

Note: B = Coefficient not standardised; SE = Standard Error; ß = Beta, standardised regression coefficient; t = t test; CI = confidence interval.

equation. The score obtained in the Anorgasmia variable was used as the dependent variable. It was included the variables related to sexual response, such as dissatisfaction, infrequency, avoidance and non-sensuality, given that it was thought that they could be directly involved in anorgasmia. It can be seen that the variables that contribute significantly to predict the score in anorgasmia are dissatisfaction (p = .005) and non-sensuality (p = .007). The confidence intervals were not wide (between 0.295 and 0.445), thus the equation obtained as quite accurate.

Discussion

The main aim of this research was to analyse sexual dysfunction in women who have been regular users of addictive substances.

Female drug users scored higher in the different scales of the GRISS questionnaire, thus suggesting a higher probability of presenting sexual dysfunctions. According to the results, the first hypothesis is confirmed, so it can be concluded that females who have used drugs score higher in the scales of anorgasmia. Moreover, the values of dissatisfaction, infrequency, non-sensuality and avoidance in female drug users are significantly higher than in female non-users. Therefore, female users of addictive substances may suffer from anorgasmia more frequently, have less satisfaction with sex, have sex less frequently, use less erotic role-play and are more likely to avoid sex. We can conclude from these results that the use of addictive substances used in this investigation does not facilitate the sexual response.

Our results are consistent with those from other studies claiming that addictive substances negatively affect sexual function: cocaine delays the orgasm; crack, alcohol, opiates and depressant psychotropic drugs cause anorgasmia; cannabis causes vaginal dryness; and psychotropic drugs inhibit orgasm (Cabello-Santamaría, 2010; Carabal et al., 2000). These adverse effects were accompanied by weak female orgasm and sexual response, as we have also found in this study. Similarly, a study carried out in India with 40 alcohol addicted women and their controls (Anil et al., 2017) showed that 55% of addicted alcohol women had some form of sexual dysfunctions, and 52.5% of the group had difficulty in reaching orgasm. Furthermore, alcohol addicted women showed higher scores in all parameters analysed. In our study, women who consumed alcohol presented the second highest mean score in anorgasmia (Table 4), only behind cannabis abuse. Nevertheless, the percentage of anorgasmic women from our group is lower (13.18%; Table 2) than that reported by Buruganahalli et al. (52.5%) (Anil et al., 2017). This discrepancy could be explained by at least two possibilities. First, our study addresses multiple substances abuse as opposed instead of just alcohol. And second, we found a high percentage of women avoiding sexual intercourse (47.28%) as well as decreased frequency (59.68%).

Drug abuse may cause sexual dysfunctions due to low vaginal lubrication and low sexual activation (Dişsiz & Oskay, 2011). Conversely, sexual dysfunction has been proposed as a predictor of chronic use of alcohol (Wilsnack et al., 1991). In agreement with previous data (F. J. F. J. Del Río et al., 2017; Vallejo-Medina & Sierra, 2013) we found that abstinence does not improve the GRISS questionnaire scores.

Anxiety is a remarkable aspect of people undergoing a drug rehabilitation process. At the same time, anxiety greatly influences the onset of a sexual dysfunction. Evaluation of anxiety, therefore, is an item included in the treatment guidelines for both conditions, and because of this, anxiety levels were studied in this research. We observed that scores were higher in both STAI scales, in strong support of the second hypothesis. The results showed that female users obtained significantly higher scores in the trait anxiety scale (30.93 > 16.95) and the state anxiety scale (23.82 > 14.56). It is well known that anxiety accelerates or maintains the development of sexual dysfunction (Cabello-Santamaría, 2010; Valenzuela et al., 2014). It is also a very common symptom in drug addiction (Brands et al., 2012), but as opposed to sexual dysfunction, we found that abstinence decreases anxiety levels (Table 3). These results are coherent with those from a previous study (Özkorumak et al., 2016) showing that high anxiety scores correlate with the those of vaginismus, anorgasmia, dissatisfaction and avoidance of sexual encounters. Negative experience or anticipation of pain (vaginismus) can increase anxiety in women resulting in inhibition of sexual surge, which may explain the anxiety observed in our cohort. It is documented (Arafa & Senosy, 2018) that anxiety negatively correlates with desire, activation, lubrication, satisfaction and orgasm, and positively with pain and sexual dysfunctions. Our results are also fully consistent with the conclusions of that study, albeit the percentages of anorgasmic women in our cohort are smaller.

Female drug users presented worse average score than their control counterparts in the SOS (84.93 < 95.81), suggesting more negative attitudes towards sexuality and thus supporting the third

hypothesis. When comparing the results obtained in SOS in this research with those from another publication with a sample of 1755 females (Santos-Iglesias et al., 2013), it can be seen that both groups obtained a low score. However, the control group, made of female non-users, was closer to the average (103.54) obtained in this investigation than the group of female consumers, what was expected due to the aforementioned reasons. Other studies carried out with male drug users yielded similar results, showing lower scores in SOS than male non-drug users (F.J. Del Río et al., 2012).

It can also be assumed that people without sexual dysfunctions who feel more confident in their relationships tend to seek more actively and to be more open to new experiences than people who feel insecure (erotophobic attitudes). This assumption is supported by the results of our research, which are consistent with a previous study where it was found that conservative sexual attitudes (defined as erotophobic attitudes) in a group of 300 women correlated with the presence of sexual dysfunctions (Shokrollahi et al., 1999).

At this point, it can be supposed that what happens in the sexual response of female drug users is that the drug affects sexual response (e.g., anorgasmia), which leads to unpleasant and unsatisfactory sex. This dissatisfaction produces increasing anxiety before a sexual encounter, generating lower frequency and higher avoidance of the intercourse. This situation would also affect females' attitudes towards sex, usually in the negative sense. In addition, in cases when it is impossible for them to avoid sex, they will wish to complete the sexual intercourse as soon as possible, shortening the foreplay. All these behaviours will contribute to maintain sexual dysfunction and may explain the scores obtained by individuals of our cohort in different categories (anorgasmia, avoidance, dissatisfaction, anxiety and sexual attitudes).

The last hypothesis stated that the probability of anorgasmia could be predicted through the variables studied in this research. The results of the linear regression support this hypothesis, and it defines a model that explains the 34.10% of the variance.

These results are consistent with previous studies, which indicate that anorgasmia is correlated with some of the variables in the present study: dissatisfaction, avoidance, infrequency and less erotic role-play (Amidu et al., 2010). Nevertheless, Amidu et al. (Amidu et al., 2010), who used in their study the same GRISS questionnaire as ours, found higher percentages in anorgasmia, dissatisfaction, avoidance, infrequency and non-sensuality. On the other hand, it has been reported that sexual knowledge is a predictor in women for orgasm, sexual attitudes, marital dissatisfaction and body image (Shokrollahi et al., 1999).

Some research limitations must be acknowledged in this study. With regard to the type of substances used, there are two kinds of bias. Firstly, those who attended rehabilitation centres only admitted to use one drug (e.g., cocaine), without giving importance to other drugs consumed at the same time (alcohol, cannabis, etc.) that may have an influence on sexual behaviour. Secondly, another limitation that exists in this study is that there are women who have consumed substances with opposite effects (stimulants and depressants), and both substances can have different effects on the sexual response. Another limitation of this study had not been included a homosexual or bisexual population, since the questionnaire used to assess sexual dysfunctions was validated only in a heterosexual population. Furthermore, we cannot assure that the control group of women did not take any type of drugs as we relied on their statements.

The present study concluded that drug-using females are more likely to have anorgasmia, sexual dissatisfaction, less frequent sexual intercourse, use less erotic games and more actively avoid sexual encounters, which non-drug-using females. Accordingly drug-using females could have higher likely suffering to a high level of anxiety and worse sexual attitudes. The concern about the harmful effects of addictive substances on sexuality, as well as the consequences that these could have on sexual response, have been the main driver of this study. Sexual dysfunction is not treated in depth in drug addiction centres, where the attention provided to their patients focuses on other aspects. However, this issue should be considered, given that it could affect the quality of life and the relationship of the couple. Therefore, this study aims to emphasise the importance of such therapeutic work with drug-dependent women by highlighting the difficulties that they can have. Getting some improvement in

their sexual health would constitute an essential aspect for preventing relapse.

Disclosure statement

The authors declare that they have no conflict of interest.

Notes on contributors

Francisco Javier del Río Olvera, PhD, is a psychologist, specialist in sexology and methodology. Professor in the area of Personality, Psychological Evaluation and Treatment at the University of Cadiz, and has over 10 years working in clinical psychology with people with addiction problems. He has received several research awards in the area of sexuality. He is a member of the Editorial Board of "Revista Internacional de Andrología y Medicina Sexual". He is also a reviewer for the publication of articles in various scientific journals. His main areas of work are psychology, sexuality, addictions and research methodology. In May 2016 a book based on his clinical experience in the field of people with addiction problems will be published.

Marina A. Cabello García is psychologist and sexologist. Expert in neuro feedback. Director of the Department of Psychology of Adolescence in the Andalusian Institute of Sexology and Psychology and member of the Research Department. She has participated in 16 research on human sexuality and received the award for the best research in the XI Spanish Congress of Sexology.

Francisco Cabello Santamaria, PhD, is Sexologist, Clinical Psychologist and Psychiatrist. Director of the Andalusian Institute of Sexology and Psychology. Author of 7 books on sexology and 44 scientific publications. He is a member of the Editorial Board of "Revista Internacional de Andrología y Medicina Sexual", "Sexología Integral", "Archivos Hispanoamericanos de Sexología", "Cuadernos de Medicina Psicosomática y Psiquiatría de Enlace", and "Psiquiatría y Conducta". In 2012 he was awarded with "Award for career" by the Association of Psychologists. In 2015 he was elected President of the International Academy of Medical Sexology.

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