

The effect of tramadol abuse on the quality of sexual life

Mostafa M. Abdel Naem, Mohammed T. Sidik, Maha A. Hassan,
Saad A. Abd El-Maseeh, Salwa M.R. Taha

Department of Psychiatry, Minia University,
Minia, Egypt

Correspondence to Salwa M.R. Taha, MD in
Psychiatry, Department of Psychiatry, Minia
University, Minia, Egypt; Neurology and
Psychiatry Department, El-Minia University
Hospital, El-Minia, 61111, Egypt.
Mob: 00201091166248;
e-mail: salwarabie4@yahoo.com

Received: 15 March 2020

Accepted: 19 April 2020

Published: 5 October 2020

Egyptian Journal of Psychiatry 2020,
41:134–140

Objectives

Tramadol abuse has spread markedly among the Egyptian people with many myths about its value in improving physical and sexual function. This study aims to assess the different aspects of sexual function in patients with long-term tramadol abuse.

Patients and methods

The participants of the study were recruited from the Hotline Clinic of Minia Psychiatric Hospital, Upper Egypt during a 6-month period. After taking their consent, 68 individuals with a history and a positive urine analysis test of tramadol abuse were included. They were assessed clinically and by addiction severity index, sexuality scale, and sexual quality of life questionnaire-male version. They were compared with a control group of 43 individuals with no history of drug abuse and negative urine analysis test.

Results

All the aspects of quality of sexual life were significantly better in the control group than the tramadol abuse group. There was a significant correlation between the number of symptoms and the sexual esteem; and between psychiatric status and sexual esteem and sexual depression; and between family and social problems and sexual esteem and sexual depression.

Conclusion

Patients with tramadol abuse are more likely to have poor quality of sexual life in comparison to healthy controls.

Keywords:

abuse, sexual life, tramadol

Egypt J Psychiatr 41:134–140
© 2020 Egyptian Journal of Psychiatry
1110-1105

Introduction

Tramadol abuse is an increasingly alarming phenomenon in the Egyptian community (Salem *et al.*, 2008). Rizk *et al.* (2016) found that 27% of tramadol users in their sample reported psychiatric factors as the predisposing factors for their abuse; 23.8% reported physical pain and overcoming fatigue and hardship during work; 11.1% reported sexual factors; while 38.1% reported multiple predisposing factors.

In a study done in Egypt, tramadol was found to be associated with decreased sexual self-esteem and overall sexual relationship satisfaction as measured by the Arabic version of self-esteem and relationship questionnaire. The study also showed significant improvement in sexual relationship, sexual esteem, and sexual satisfaction in tramadol users after 6 months of abstinence (El-Hadidy and El-Gilani, 2014). Aggarwal *et al.* (2016) found significant difference in all domains of sexual function between opioid users and control.

However, no studies were found to explore the effect of tramadol on sexual life quality of tramadol users.

Patients and methods

Study setting

The study was held in Minia Psychiatric Hospital, the official psychiatric hospital in Minia Governorate, Upper Egypt. It provides services for psychiatric patients and patients of substance abuse with a 60-bed inpatient capacity as well as a daily outpatient clinic and a Hotline Clinic for substance abuse. The agreement of the Ethical Scientific Committee of Minia Faculty of Medicine was obtained before the start of the research.

Patients

All married male clients attending Hotline Clinic in the duration of 6 months (from July 1, 2017 to December 31, 2017) were subjected to urine screening analysis for substances of abuse. Those with a positive screening test for tramadol only were included. Additional inclusion criteria were: (a) age

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

range: 20–45 years and (b) patient's consent to participate in the procedures of the study. Those with a history of major physical (such as diabetes mellitus, heart failure, renal failure, and hepatic failure) or mental (such as schizophrenia) illness were excluded. The total number of participants finally included in the study was 68. Another group of 43 healthy married individuals, within the same age range, were included as a control group.

Tools

A comprehensive sheet was used for evaluating the study participants. It included sociodemographic data, history of cigarette smoking, detailed history of tramadol use and treatment, family history of substance use, and screening for psychiatric symptoms. This was followed by mental state examination and general and neurological examination to exclude any major physical illness that may affect sexual functions.

Structured clinical interview for DSM-5 (SCID-5), substance use module was used for the diagnosis of opioid use disorders attributed to tramadol. It is a semistructured interview guide for making DSM-5 diagnoses. It was published by the American Psychiatric Association (First *et al.*, 2015).

Then, the addiction severity index (ASI) (McLellan *et al.*, 1980) is a semistructured interview designed to provide a multidimensional assessment of problems presented by patients with substance use disorders. It was used for evaluation of the severity of the effect of tramadol use on different domains.

Different domains of quality of sexual life were evaluated using the sexuality scale. It is a 30-item, self-administered questionnaire that measures three aspects of human sexuality: sexual esteem (10 items), sexual depression (10 items), and sexual preoccupation (10 items). The test has a high degree of reliability (Snell and Papini, 1989).

Sexual quality of life questionnaire-male version is an 11-item, self-administered questionnaire used to detect the impact of sexual dysfunction on the quality of life in men. Each item has a six-point Likert-like response. Total raw score ranges from 11 to 66. Higher scores imply greater quality of life. The test has good internal consistency with an alpha coefficient of 0.92 (Abraham *et al.*, 2008).

Statistical analysis

Data analysis was done using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, USA), version 19.0 for Windows. Frequencies and percentages were calculated for categorical variables, whereas means and SDs were calculated for continuous variables. Descriptive statistics of the study participants were conducted. *t* tests were used to compare the group with tramadol use and the control group on continuous variables, whereas χ^2 tests were used in comparing the two groups on categorical variables.

Results

As shown in Table 1, there was no statistically significant difference between the group of tramadol users and the control group regarding

Table 1 Sociodemographic characteristics of the tramadol use group compared with the control group

Variables	Tramadol users (N=68)	Control (N=43)	P value
Age (years)			
Mean±SD	33.66±5.666	32.23±4.535	0.166
Range	21–44	24–42	
Duration of marriage (years)			
Mean±SD	11.19±5.502	9.79±5.031	0.180
Range	1–25	1–21	
Smoking index			
Mean±SD	380.74±244.888	265.12±100.388	0.006*
Range	40–1200	120–520	
Education [n (%)]			
Illiterate	12 (17.6)	3 (7)	
Read	7 (10.3)	3 (7)	
Primary	7 (10.3)	3 (7)	
Preparatory	5 (7.4)	–	0.078
Technical	33 (48.5)	32 (74.4)	
Intermediate	–	1 (2.3)	
High	4 (5.9)	1 (2.3)	

*P value less than or equal to 0.05 is statistically significant.

sociodemographic characteristics (age, sex, residence, educational level, and working status at the time of interview).

Table 2 illustrates the characteristics of tramadol use among the tramadol use group. The mean age at onset of tramadol use was 26.24 ± 6.472 years. The mean duration of tramadol use was 7.74 ± 3.610 years. The average daily dose was 1016.53 ± 636.54 mg. Most patients (60%) had moderate severity of addiction.

As evident from Table 3, psychiatric state, drug use, and family and social domains were the most severely affected domains among the tramadol users according to the ASI.

Table 2 Characteristics of tramadol use

Variables	Results
Age at onset (years)	
Mean \pm SD	26.24 \pm 6.472
Range	16–41
Duration of use (years)	
Mean \pm SD	7.74 \pm 3.610
Range	2–17
Average daily dose (mg)	
Mean \pm SD	1016.53 \pm 636.539
Range	50–2700
SCID-5 [n (%)]	
Severe (≥ 6 symptoms)	17 (25)
Moderate (4–5 symptoms)	41 (60.3)
Mild (2–3 symptoms)	10 (14.7)

SCID-5, Structured clinical interview for DSM-5.

Table 3 Addiction severity index scores for the tramadol use group

Domains of ASI	Tramadol use group (N=68) [n (%)]		
	Mild problems	Moderate problems	Severe problems
Drug use	6 (8.8)	35 (51.5)	27 (39.7)
Medical status	27 (39.7)	30 (54.4)	11 (16.2)
Psychiatric state	7 (10.3)	33 (48.5)	28 (41.2)
Occupational deterioration	11 (16.2)	43 (63.2)	14 (20.6)
Family/social problems	8 (11.8)	39 (57.3)	21 (30.9)
Legal state	44 (64.7)	18 (26.5)	6 (9.8)

ASI, addiction severity index.

Table 4 Comparison between tramadol users and control group for sexuality scale questionnaire scores

	Tramadol users (N=68)	Control (N=43)	P value (t test)
Sexual esteem			
Mean \pm SD	4.41 \pm 10.796	17.16 \pm 2.609	0.000*
Range	–20 to 20	11 to 20	
Sexual depression			
Mean \pm SD	–5.25 \pm 10.71	–17.14 \pm 2.84	0.000*
Range	–20 to 16	–20 to –9	
Sexual preoccupation			
Mean \pm SD	2.56 \pm 9.180	7.47 \pm 4.915	0.002*
Range	–17 to 16	–3 to 16	

*P value less than or equal to 0.05 is statistically significant.

Regarding the sexuality scale questionnaire, there was a statistically significant difference between the tramadol users and the control group in sexual self-esteem, sexual depression, and sexual preoccupation (Table 4).

As illustrated by Table 5, there was a statistically significant difference between tramadol users and control group regarding sexual quality of life.

A statistically significant negative correlation was found between age and sexual esteem; and a statistically positive correlation with sexual depression. Smoking index was not significantly correlated with any of the assessed domains of quality of sexual life (Table 6).

Table 7 illustrates that there was a statistically significant negative correlation between the number of symptoms according to SCID-5 and sexual esteem. Age at onset of tramadol use and duration of tramadol use showed no statistically significant correlations with any of the assessed domains of quality of sexual life.

As illustrated in Table 8, there was a statistically significant negative correlation between sexual esteem and scores of psychiatric status domain and family and social domain of ASI. Also, there was a statistically significant positive correlation between both domains and sexual depression. There was no statistically significant correlation between any of the other domains of ASI and sexual functions.

Table 5 Comparison between tramadol users and controls regarding sexual quality of life questionnaire (male version) score

	Tramadol users (N=68)	Control (N=43)	P value (t test)
SQOL-M			
Mean±SD	62.49±21.6	92.18±6.798	-8.732
Range	2–96	75–100	0.000*

SQOL-M, sexual quality of life questionnaire-male version. *P value less than or equal to 0.05 is statistically significant

Table 6 Correlation between sexual functions and age and smoking index

	Absolute age		Smoking index	
	R	P value	R	P value
Sexuality scale				
Sexual esteem	-0.266	0.028*	-0.152	0.215
Sexual depression	0.242	0.047*	0.069	0.574
Sexual preoccupation	-0.018	0.883	-0.081	0.513
SQOL-M	-0.220	0.072	-0.213	0.081

SQOL-M, sexual quality of life questionnaire-male version. *P value less than or equal to 0.05 is statistically significant.

Discussion

Our study was carried out on the outpatient sample. Similar to our study, many previous Egyptian studies of tramadol addiction were carried out in outpatient addiction clinics (El-Hadidy and Helaly, 2015; El-Sayed *et al.*, 2015; Bassiony *et al.*, 2016, Bassiony *et al.*, 2017).

The inclusion of married individuals in the study was for insuring that patients have regular sexual intercourse. This is similar to a previous study by El-Hadidy and El-Gilani (2014). However, this is different from Abdelazim *et al.* (2015) who included divorced and single patients in their study.

Only patients in the age range from 20 to 45 years were included; this helps avoiding as much as possible the effect of old age on sexual functions. Other studies put comparable age restrictions for the same purpose (El-Hammady *et al.*, 2014; Abdelazim *et al.*, 2015). El-Hadidy and El-Gilani (2014) did not state a maximum age for inclusion; however, there were no one in their sample above 49 years.

The selection of patients with pure tramadol abuse and exclusion of polysubstance abusers (on the basis of history and urine screen tests for substances of abuse) was decided on the grounds of avoiding the effects of other substances on the sexual functions as well as the interactions between tramadol and the other substance as a cause for sexual dysfunctions. This coincides with one previous study (El-Hadidy and El-Gilani, 2014), but it was not the case in other studies; Farag *et al.* (2018) included not only patients with pure tramadol use, but also patients with predominantly tramadol use.

The mean age of the tramadol use group in our study is similar to the results of a previous study in Egypt by El-Hadidy and El-Gilani (2014), and slightly higher than previous studies in Egypt (Fawzi, 2011; Abd-Elwahab, 2012; El-Sayed *et al.*, 2015; Mohamed *et al.*, 2015; Rizk *et al.*, 2016; Abou El-Magd *et al.*, 2018; El-Wasify *et al.*, 2018; Farag *et al.*, 2018). This can be explained by the fact that in our study we included only married patients and excluded unmarried patients. The same was done by El-Hadidy and El-Gilani (2014), so they had a result similar to ours. The inclusion of single individuals in other studies has led to slightly younger mean of age.

All members of the current study were smokers. Average smoking index among the tramadol use group was 380.74±240.888 cigarette×year, ranging from 40 to 1200. This is significantly higher than the control group. This is consistent with Bassiony *et al.* (2016) who found that tobacco smoking is more prevalent among tramadol users than the control group. These findings can be explained by the bidirectional relationship between tramadol use and severity of tobacco smoking, that is tramadol use increases the severity of tobacco smoking and vice versa (Shalaby *et al.*, 2015). Also, tramadol decreases the anxiety and aggression induced by nicotine (Azmy *et al.*, 2018).

The average daily dose was 1016.53±636.539 mg, ranging from 50 to 2700 mg. This high dose can be explained by the phenomenon of tolerance. These findings are consistent with previous Egyptian studies (El-Hadidy and Helaly, 2015; Shalaby *et al.*, 2015; Rizk *et al.*, 2016; Abou El-Magd *et al.*, 2018; El-Wasify *et al.*, 2018), who found approximately similar results. However, there was one study that found a much lower average daily dose of around 650 mg daily (Farag *et al.*, 2018).

Regarding ASI, the most severely affected domains among tramadol abusers were psychiatric problems, drug use, and family/social problems. This is inconsistent with previous similar Egyptian studies (Abdelazim *et al.*, 2015; Mohamed *et al.*, 2015; Bassiony *et al.*, 2016; El-Taher *et al.*, 2016; Abd El-Qader *et al.*, 2017), which found results comparable to

Table 7 Correlation between sexual life domains and tramadol use characteristics

	Age at first use		Duration of use		Daily dose		SCID-5	
	R	P value	R	P value	R	P value	R	P value
Sexuality scale								
Sexual esteem	-0.230	0.059	0.020	0.873	-0.136	0.267	-0.328	0.006*
Sexual depression	0.224	0.066	-0.044	0.723	0.089	0.471	0.108	0.380
Sexual preoccupation	0.046	0.707	-0.047	0.702	-0.053	0.670	-0.055	0.657
SQOL-M	-0.111	0.367	-0.153	0.214	-0.086	0.486	-0.237	0.051

SCID-5, Structured clinical interview for DSM-5; SQOL-M, sexual quality of life questionnaire-male version. *P value less than or equal to 0.05 is statistically significant.

Table 8 Correlation between sexual life domains and addiction severity index

	Medical status		Psychiatric status		Family and social problems		Drug use		Occupational problems		Legal state	
	R	P value	R	P value	R	P value	R	P value	R	P value	R	P value
Sexuality scale												
Sexual esteem	-0.08	0.489	-0.29	0.013*	-0.295	0.014*	-0.114	0.353	-0.109	0.375	-0.19	0.118
Sexual depression	0.055	0.656	0.267	0.028*	0.273	0.025*	0.038	0.757	0.052	0.672	0.134	0.277
Sexual preoccupation	-0.03	0.750	-0.09	0.456	-0.209	0.087	-0.024	0.847	-0.057	0.643	-0.03	0.782
SQOL-M	-0.17	0.162	-0.23	0.052	-0.164	0.181	-0.164	0.182	-0.196	0.109	-0.05	0.655

SQOL-M, sexual quality of life questionnaire-male version. *P value less than or equal to 0.05 is statistically significant.

ours. Severe affection of psychiatric domain is explained by the high prevalence of psychiatric comorbidities among tramadol abusers, mainly mood and anxiety symptoms (Mohamed *et al.*, 2014; El-Hadidy and Helaly, 2015; Mohamed *et al.*, 2015; Rizk *et al.*, 2015; Bassiony *et al.*, 2016).

Considering the sexual esteem, our study found a statistically significant decrease in sexual esteem in the tramadol use group compared with the control group. Another finding in our study is the significantly lower sexual desire in tramadol users than the control group. These results are consistent with Abdelazim *et al.* (2015) who found a statistically significant lower sexual esteem, sexual satisfaction, and sexual desire among opioid users in comparison to the healthy control group. The fact that patients on tramadol know that they are abnormal and dependent on substance to make efficient sex practices leading to a decrease in their self-esteem (El-Hadidy and El-Gilani, 2014).

Moreover, we found a statistically significant increase in sexual depression in the tramadol use group. This finding could be related to or resulted from the lower sexual esteem and desire of the tramadol use group. Our results are also consistent with Abdelazim *et al.* (2015) who found that 70% of opioid abusers had either high or intermediate levels of sexual depression, in comparison to the control group in which 80% had low levels of sexual depression.

In our study, there was a statistically significant decrease in sexual preoccupation in tramadol users than the control group. Also, our findings were consistent with Abdelazim *et al.* (2015) who found that 70% of opioid users had either low or intermediate sexual preoccupation, in contrast to 33.2% of the control group. These findings are best explained by Weckbecker *et al.* (2005) who stated that it is nearly impossible for drug addicts, and mainly opioid addicts, to maintain intimate relationships; this is because opioid becomes their obsession and leave no room to anyone else. Those with severe addiction may lose all interest in sex completely.

In this study, we found a statistically significant decrease in the sexual quality of life in tramadol users than the control group. This result might be related to the fact that tramadol significantly decreases the sexual quality of life of tramadol users. This is consistent with other findings of the study that are the poor scores of all other domains of sexual functions users, which will subsequently lead to poor sexual quality of life. No similar research was found to explore the relationship between tramadol use and sexual quality of life.

The number of symptoms reflects the severity of the drug use disorder, and our study found a statistically significant negative correlation between the number of symptoms according to SCID-5 and sexual esteem. To the best of our knowledge, there were no available studies assessing the relationship between sexual functions and

the number of symptoms of opioid use disorder according to the structured clinical interview for either DSM-IV-TR or DSM-5. In a study on the levels of male sex hormones in tramadol addicts, Fahim *et al.* (2018) found a significant negative correlation between severity of addiction (measured by ASI) and levels of sex hormones, which in turn affect the erectile function and consequently sexual esteem and satisfaction.

Our study found statistically significant correlations between scores of ASI domains and quality of sexual life. There was a statistically significant negative correlation between scores of psychiatric status domain and sexual esteem; and a statistically significant positive correlation with sexual depression. Also, there was a statistically significant negative correlation between scores of family/social problems domain and sexual esteem, and a statistically significant positive correlation with sexual depression.

Comparable to our results, Abdelazim *et al.* (2015) found significant negative correlation between scores of family/social problems domain and orgasmic function. Abd El-Qader *et al.* (2017) found a significant negative correlation between the score of family/social problems domain and intercourse satisfaction. Fahim *et al.* (2018) found a significant negative correlation between severity of tramadol addiction (measured by ASI) and sexual satisfaction.

These results can be explained by the serious effects of opioids on the user's lifestyle, disrupting relationships with family and friends. This disruption can lead to marital problems, decreased sexual interest, difficulty in reaching orgasm, and disruption in interpersonal relationships and self-worth (Arnstein and Marie, 2010).

Our study found a statistically significant negative correlation between age and sexual esteem; and a statistically significant positive correlation with sexual depression. Consistent with our results, Zhang *et al.* (2014) found negative correlation between age of opioid users and erectile function, sexual desire, orgasmic function, and intercourse satisfaction. These findings related to age might reflect on long-term tramadol use leading to these negative effects on sexual esteem and consequently sexual depression.

Conclusions

(1) Long-term tramadol use has a statistically significant negative effect on all domains of quality of sexual life among men.

(2) Average daily dose and severity of addiction are significantly correlated to poor quality of sexual life in patients with tramadol abuse.

Recommendations

More studies exploring the effects of different substances of abuse on sexual life quality are mandatory.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Abd El-Qader MAE, El-Rasheed AH, Ismail GA, Awaad MI, El-Habiby MM, Ibrahim NMM. (2017). Sexual dysfunction in opiate use disorder in male Egyptian patients [M. Sc. degree thesis]. Cairo, Egypt: Faculty of Medicine, Ain Shams University.
- Abd-Elwahab D. (2012). Correlation of tramadol blood level with clinical picture of intoxicated patient of poison control center [unpublished M.D. thesis]. Cairo, Egypt: Faculty of Medicine, Cairo University.
- Abdelazim S, Abolmagd SF, Abdalla H, Enaba DA, Elsheikh SM, Moselhy HF (2015). Sexual dysfunction and sex hormone levels in Egyptian opioid-dependent males. *Am J Pharm Health Res* 3:81–91.
- Abou El-Magd S, Khalil MA, Gohar SM, Enaba D, Abdelgawad TMS, Hasan NM, Miotto K, Rawson R (2018). Tramadol misuse and dependence in Egypt and the UAE: user characteristics and drug-use patterns. *Int Addict Rev* 2:6–13.
- Abraham L, Symonds T, Morris M (2008). Psychometric validation of a sexual quality of life questionnaire for use in men with premature ejaculation or erectile dysfunction. *J Sexual Med* 5:595–601.
- Aggarwal N, Kherada S, Gocher S, Sohu M (2016). A study of assessment of sexual dysfunction in male subjects with opioid dependence. *Maresh Sohu Asian J Psychiatry* 23:17–23.
- Arnstein P, St. Marie B (2010). Managing chronic pain with opioids: A call for change. *Am J Nurse Practitioners* 14:48–51.
- Azmy SM, Abd El-Fattah MA, Abd El-Rahman SS, Nada SA, Abdel Salam OME, El-Yamany MF, Nassar NN (2018). Does nicotine impact tramadol abuse? Insights from neurochemical and neurobehavioral changes in mice. *Neuro Toxicology* 67:245–258.
- Bassiony MM, Youssif U, Hussein R, Saeed M (2016). Psychiatric comorbidities among Egyptian patients with opioid use disorder attributed to tramadol. *J Addict Med* 10:262–268.
- Bassiony MM, Youssef U, Hassan M, Salah El-Deen GM, El-gohari H, Abdelghani M, *et al.* (2017). Cognitive impairment and tramadol dependence. *J Clin Psychopharmacol* 37:61–66.
- El-Hadidy MA, El-Gilani A (2014). Physical and sexual well-being during and after tramadol dependence. *Middle East Curr Psychiatry* 21:148–151.
- El-Hadidy MA, Helaly AMN (2015). Medical and psychiatric effects of long-term dependence on high dose of tramadol. *Subst Use Misuse* 50: 582–589.
- El-Hammady M, Mobasher M, Moselhy HF (2014). Patterns of risky sexual behaviors in opioid-dependent Egyptian adults. *Addict Disord Treat* 13: 68–74.
- El-Sayed MS, Youssif UM, Bassiony MM, Abd Elatif RR (2015). Tramadol abuse: sociodemographic and clinical correlates. *Zagazig Univ Med J* 21:360–372.
- El-Taheer RA, Abd El-Wahab MM, Abou El-Magd SF, Grella CE, Enaba DA. (2016). Characteristics of tramadol-dependent patients compared to heroin-dependent patients [M.D. degree thesis]. Cairo, Egypt: Faculty of Medicine, Cairo University.
- El-Wasify M, Fawzy M, Barakat D, Youssef D, El Wasify MA, Saleb A, *et al.* (2018). Sociodemographic and clinical characteristics of tramadol dependence among Egyptians and their relationship to insomnia. *Addict Disord Treat* 17:98–106.

- Fahim MM, Darweesh MA, Ahmed HK, Gabra RH. (2018). Male sex hormones affection in patients with tramadol dependence [M. Sc. degree thesis]. Assiut, Egypt: Faculty of Medicine, Assiut University.
- Farag AGA, Basha MA, Amin SA, Elnaidany NF, Elhelbawy NG, Mostafa MTT, *et al.* (2018). Tramadol (opioid) abuse is associated with a dose- and time-dependent poor sperm quality and hyperprolactinaemia in young men. *Andrologia* 50:e13026.
- Fawzi MM (2011). Some medicolegal aspects concerning tramadol abuse: the new Middle East youth plague 2010. An Egyptian overview. *Egypt J Forensic Sci* 1:99–102.
- First MB, Williams JBW, Karg RS, Spitzer RL (2015). Structured Clinical Interview for DSM-5—Research Version (SCID-5 for DSM-5, Research Version; SCID-5-RV). Arlington, VA: American Psychiatric Association.
- McLellan AT, Luborsky L, Woody GE, O'Brien CP (1980). An improved diagnostic evaluation instrument for substance abuse patients: the addiction severity index. *J Nerv Ment Dis* 168:26–33.
- Mohamed MSM, Soliman AMA, Eissa AM, Mahmoud DA. (2014). Tramadol abuse in an Egyptian sample in Al-Mamoura addiction treatment clinics: prevalence and characteristic profile [M. Sc. degree thesis]. Cairo, Egypt: Faculty of Medicine, Ain Shams University.
- Mohamed NR, El Hamrawy LG, Shalaby AS, El Bahy MS, Abd Allah MMA (2015). An epidemiological study of tramadol HCl dependence in an outpatient addiction clinic at Heliopolis Psychiatric Hospital. *Menouf Med J* 28:591.
- Rizk MM, Kamal AM, Bakheet MAA, Abdelfadeel NA, Khafagi AT (2015). Frequency and factors associated with depression in subjects with tramadol abuse. *Eur Neuropsychopharmacol* 25:S617.
- Rizk MM, Kamal AM, Bakheet MA, Abdelfadeel NA, Hassan EM, Khafagi AT (2016). Frequency and factors associated with occurrence of seizures in patients with tramadol abuse: an Upper Egyptian Experience. *Addict Disord Treat* 15:42–48.
- Salem EA, Wilson SK, Bissada NK, Delk JR, Hellstrom WJ, Cleves MA (2008). Tramadol HCL has promise in on-demand use to treat premature ejaculation. *J Sex Med* 5:188–193.
- Shalaby AS, Sweilum OA, Ads MK (2015). Does tramadol increase severity of nicotine dependence? A study in an Egyptian sample. *J Psychactive Drugs* 00:1–6.
- Snell W, Papini D (1989). The sexuality scale (SS): An instrument to measure sexual- esteem, sexual-depression, and sexual-preoccupation. *J Sex Res* 26:256–263.
- Weckbecker A, Davide C, Daniel L (2005). Binding and functional analogue KE 108 at native mouse somatostatin receptors properties of the novel somatostatin. *J Neuropharmacol* 48:881e893.
- Zhang M, Zhang H, Shi CX, McGoogan JM, Zhang B, Zhao L, *et al.* (2014). Sexual dysfunction improved in heroin-dependent men after methadone maintenance treatment in Tianjin, China. *PLoS One* 9: e88289.