



# Prevalence of Pregabalin (Lyrica) Abuse among Healthcare Professionals in Asser Province Saudi Arabia

Alsubaie SS<sup>1\*</sup>, Zarbah AA<sup>2</sup>, Alqahtani AS<sup>3</sup>, Abdullah AS<sup>3</sup>, Aledrees NS<sup>3</sup>, Alshehri WA<sup>3</sup>, Asiri FY<sup>3</sup> and Zarbah BA<sup>4</sup>

<sup>1</sup>Department of Psychiatry, Armed Forces Hospital, Southern Region, Khamis Mushayt, Saudi Arabia

<sup>2</sup>Mental Health Hospital, Abha, Saudi Arabia

<sup>3</sup>College of Medicine, King Khalid University, Abha, Saudi Arabia

<sup>4</sup>College of Pharmacy, King Khalid University, Abha, Saudi Arabia

\*Corresponding author: Sultan Saad Alsubaie, Consultant Psychiatrist, psychiatry department, Armed Forces Hospital Southern Region, P.O. Box 101, Khamis Mushayt, Saudi Arabia, Tel: +96-6503799971; E-mail: dr.slt4444@gmail.com

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## Abstract

**Introduction:** Substance use disorders among healthcare professionals (HCPs) adversely affect the HCPs ability to perform their duties. No previous researches that have examined the prevalence of pregabalin abuse among HCPs. Our study aimed to assess prevalence of pregabalin abuse among HCPs in Asser province of Saudi Arabia and its associated factors.

**Methods:** A cross-sectional study was carried out among HCPs (n=372) in three main hospitals in Asser region, southern Saudi Arabia using an English online survey questionnaire which was developed by the researchers after intensive literature review and using the Diagnostic and statistical manual of mental disorders (5th ed.; DSM-5; APA, 2013) criteria for the pregabalin use disorder.

**Results:** Most of the participants were young ( $25.6 \pm 9.5$  years), married males with mean experience of  $8.1 \pm 10.6$  years. About 43.4% of the studied sample were physicians whereas paramedical staff, nurses and pharmacists constituted 29%, 17.7%, 9.7%, respectively. The utilization rate was 11.6% of the sampled staff, and non-prescribed among 48.9% of pregabalin users. The prevalence of pregabalin abuse among the studied sample was 0.06%. Almost, 61.9% of abusers were males, 52% ( $p=0.030$ ) of them were less than 30-year-old, 57.1% ( $p=0.049$ ) paramedical staff, on the other hand other factors including job experience and marital status had no relation with pregabalin abuse. Approximately 42.9% of abusers use it for stress management with recorded statistical significance ( $p=0.005$ ) and 52% abused more than one drug at a time ( $p>0.05$ ).

**Conclusion:** This is the first study examined the prevalence of pregabalin abuse among HCPs. Our findings confirmed previous studies examining the pregabalin abuse potential and

substance use disorder among HCPs. Solid regulations are substantial for prescribing pregabalin among HCPs.

**Keywords:** Pregabalin; Lyrica; Abuse; Prevalence; Healthcare professionals; Saudi Arabia

## Abbreviations:

GABA: Gamma-Aminobutyric Acid; GAD: Generalized Anxiety Disorder; HCPs: Healthcare Professionals; PPS: Probability Proportionate to Size; DSM-5: Diagnostic and Statistical Manual of Mental Disorders 5th Edition; APA: American Psychiatric Association; IBM SPSS: Statistical Package for the Social Sciences.

## Introduction

Pregabalin is an analogue of the gamma-aminobutyric acid (GABA) neurotransmitter, and approved for the treatment of partial epilepsy, generalized anxiety disorder (GAD), peripheral and central neuropathic pain, and fibromyalgia [1]. The possibility for abuse and/or dependence on pregabalin was examined by several studies [2-4]. Pregabalin is controlled in many countries including Saudi Arabia [5-8] however, unofficial use of this substance is also on the increase [9,10]. Most of pregabalin abusers ingest it with other substances and have a history of substance abuse [3,10-14].

Substance use disorders among healthcare professionals (HCPs) adversely affect the HCPs ability to perform their duties. This concern is anticipated to grow and vary by group [15,16]. There are no difference between HCPs and general population in substance misuse and addiction rates, however, opioid abuse is high among HCPs than the general population [17,18]. HCPs like most people with substance use disorders, abuse drugs or alcohol to relieve stress and emotional or physical pain. Any healthcare worker who has access to controlled substances is at risk for drug diversion and substance abuse. Physicians, anesthesiologists, surgeons, pharmacists, registered nurses, nurse anesthetists and dentists are among the most frequent abusers [19-21].

Up to authors knowledge after searching in different databases there were no previous researches that have examined the prevalence of pregabalin abuse among HCPs and we found only two studies examined the prevalence of pregabalin in Arabic countries, but they were conducted at inpatient hospitals and the subjects were not HCPs [10,22]. Therefore, the results of this study are hoped to shed some light on the magnitude of pregabalin abuse among HCPs in Saudi Arabia and their correlation with different demographic data.

## Methods

The current study was conducted among 372 HCPs in three main hospitals in Asser region, southern Saudi Arabia (Abha Maternity Hospital, Asser Central Hospital, and Military hospital in Khamis Mushayt) during the period from July 2017 to July 2018. The HCPs included were physicians, pharmacists, nurses, and paramedical staff. The sample units were selected from the different hospitals using stratified random sampling using job category as the stratification factor based on list of available staff within each hospital. The sample

size within each setting based on probability proportionate to size (PPS) technique. The study design was a cross-sectional study that obtained all required ethical approval from Research Ethics Committee, college of medicine, King Khalid University, Abha, Kingdom of Saudi Arabia. Informed consent was obtained from all participants.

The survey questionnaire was developed by the researchers after intensive literature review and using the diagnostic and statistical manual of mental disorders (5th ed.; DSM-5; APA, 2013) criteria for the pregabalin use disorder [23,24]. Finally, a multi-disciplinary committee covering psychiatry, psychology, and epidemiology validated the content of the questionnaire. The questionnaire was then piloted on a small number of participants (n=20) before being widely distributed. The wording and suggested answers were modified for some questions based on the feedback from the pilot sample.

The survey questionnaire covered demographic characteristics for sampled staff; and job-related data including job nature, duration and experience. Data regarding pregabalin including its use, if used, it was prescribed or not, indications of use and staff attitude towards its use. The survey was distributed online in English language.

After data were collected it was revised, coded and fed to statistical software IBM SPSS version [22]. All statistical analysis was done using two tailed tests and alpha error of 0.05. p value less than or equal to 0.05 was considered to be statistically significant. Descriptive statistics was done by showing frequencies and percentages for categorical while mean with standard deviation were used for scale variable. Any associations between different staff characteristics and pregabalin use were tested using chi square or exact-tests based on assumptions fulfilled. Included graph was constructed using Microsoft Excel software.

## Results

The study included 372 medical staff of which 162 physicians (43.4%), 108 paramedical staff (29%), 66 nurses (17.7%), and 36 pharmacists (9.7%). Ages of the participants ranged from 20 years to 58 years with mean age of  $25.6 \pm 9.5$  years old. About 63% of the sampled staff was males and the experience years ranged from 1 to 30 years with mean experience of  $8.1 \pm 10.6$  years. Around half of the participants were married (57.0%) (Table 1).

Socio-demographic data		Using pregabalin (Lyrica)				Total		p
		No		Yes		No	%	
		No	%	No	%			
Gender	Male	208	63.2%	28	65.1%	236	63.4%	.808
	Female	121	36.8%	15	34.9%	136	36.6%	
Age in years	20-	225	68.4%	28	65.1%	253	68.0%	.419
	30-	75	22.8%	13	30.2%	88	23.7%	
	40+	29	8.8%	2	4.7%	31	8.3%	
Job	Physician	146	44.4%	16	37.2%	162	43.5%	.070
	Nurse	59	17.9%	7	16.3%	66	17.7%	
	Pharmacist	35	10.6%	1	2.3%	36	9.7%	
	Paramedical	89	27.1%	19	44.2%	108	29.0%	
Experience in years	1-9	263	79.9%	36	83.7%	299	80.4%	.557
	10+	66	20.1%	7	16.3%	73	19.6%	
Marital status	Single	185	56.2%	27	62.8%	212	57.0%	.639
	Married	141	42.9%	16	37.2%	157	42.2%	
	Divorced / widow	3	.9%	0	0.0%	3	.8%	

**Table 1:** Socio-demographic characteristics of sampled HCPs according to Lyrica utilization status, Southern region, Saudi Arabia 2017

\*p<0.05 (significant)

Regarding pregabalin use, recorded utilization rate was 11.6% of the sampled staff. It was non-prescribed among 48.9% of pregabalin users. The prevalence of pregabalin abuse among the studied sample was 0.06%.

About 65% of the users were males compared to 63.2% of non-users. Also 65.1% of the pregabalin users were at the age group 20-30 years

compare to only 4.7% were above age of 40 years. Physicians constituted 37.2% of pregabalin users compared to 16.3% of nurses, 2.3% of pharmacists and 44.2% of paramedical staff. All these factors including marital status and job experience had no significant relation with pregabalin use (p>0.05) (Table 1).

It was clear that 61.9% of abusers (non-prescribed) were males compared to 68.2% of who had medical prescription with no statistical significance (p=0.666). About 52% of abusers were less than 30 years

compared to none of those above 40 years with statistically significant difference (p=0.030). Also 57.1% of abusers were at the paramedical team compared to 28.6% of physicians with recorded statistical

significance (p=0.049). All other factors including job experience and marital status had no relation with prescription status (Table 2).

Socio-demographic data		Prescribed Pregabalin (Lyrica)				p
		No		Yes		
		No	%	No	%	
Gender	Male	13	61.9%	15	68.2%	.666
	Female	8	38.1%	7	31.8%	
Age in years	20-	11	52.4%	17	77.3%	.030*
	30-	10	47.6%	3	13.6%	
	40+	0	0.0%	2	9.1%	
Job	Physician	6	28.6%	10	45.5%	.049*
	Nurse	3	14.3%	4	18.2%	
	Pharmacist	0	0.0%	1	4.5%	
	Paramedical	12	57.1%	7	31.8%	
Experience in years	1-9	18	85.7%	18	81.8%	.729
	10+	3	14.3%	4	18.2%	
Marital status	Single	16	76.2%	11	50.0%	.076
	Married	5	23.8%	11	50.0%	

**Table 2:** Socio-demographic characteristics of sampled HCPs according to Lyrica abuse status, Southern region, Saudi Arabia 2017.

\*p<0.05 (significant)

Regarding utilization indication, approximately 28.6% of abusers were for euphoria compared to 42.9% for stress management with

recorded statistical significance (p=0.005). About 67% of pregabalin abusers had it for less than 5 years compared to 81.8% of those had medical prescription (p>0.05) (Table 3).

Utilization data		Prescribed Pregabalin (Lyrica)				p
		No		Yes		
		No	%	No	%	
If yes, why	Euphoria	6	28.6%	1	4.5%	.005*
	Medical reasons	1	4.8%	11	50.0%	
	None	2	9.5%	0	0.0%	
	Others	3	14.3%	1	4.5%	
	Stress management	9	42.9%	9	40.9%	
Duration of using lyrica	Less than 5 years	14	66.7%	18	81.8%	.255
	More than 5 years	7	33.3%	4	18.2%	

**Table 3:** Pregabalin utilization data among sampled HCPs according to Lyrica abuse status, Southern region, Saudi Arabia 2017.

\*p<0.05 (significant)

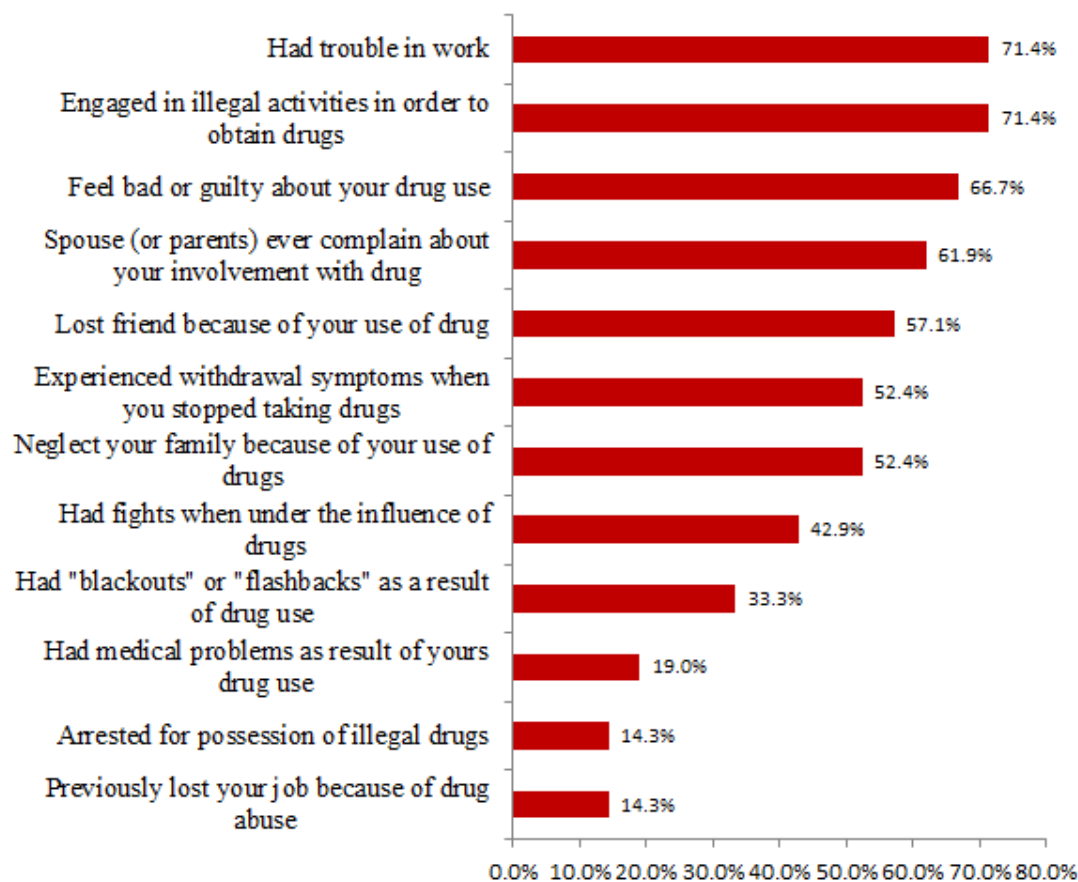


Figure 1: Consequences of Pregabalin (Lyrica) abuse among health care provider, Southern region, Saudi Arabia 2017.

As for other drug addiction, about 52% abused more than one drug at a time, 38.1% use drugs for non-medical reasons, and 28.6% recorded ability to stop on need ( $p > 0.05$ ). On asking about consequences of pregabalin use the results illustrated in (Figure 1) ( $p > 0.05$ ). Finally, 42.9% of abusers previously asked for help to quit use and 28.6% were previously involved in treatment programs ( $p > 0.05$ ).

## Discussion

Of interest for the present study is the prevalence of pregabalin abuse among HCPs and to correlate the findings with different demographic data. Our study showed the utilization rate was 11.6%, non-prescribed among 48.9% of pregabalin users and the prevalence of pregabalin abuse among the studied sample was 0.06%. We did not find in literature similar or different findings to compare it with our results. Thus, this is the first study estimate the prevalence of pregabalin abuse among HCPs. Furthermore, we compared our results with other studies that examined the substances abuse among HCPs other than pregabalin, in addition to the studies that measure the risk factors leading to the addictive behaviors of pregabalin in general population. In general population surveys, the prevalence of pregabalin abuse found to be vary among the studies; 12.1%, [11] 8.5%, [25] 4.5%, [26] and 0.8%; [27] this variation could be due to different screening tools.

The second goal of the study to correlate the findings with different demographic data. Our findings showed that 61.9% of abusers were males, which concur with previous studies [12,16,18,24,28]. About half (52%) of the participants were young (less than 30-year-old) with statistically significant difference ( $p = 0.030$ ) which similar to those reported in literature [15,24,29].

Our results revealed 57.1% ( $p = 0.049$ ) of abusers were at the paramedical team, 28.6% physicians, 14.3% nurses, and no pharmacists of the studied sample abusing pregabalin. Studies in the United States have shown that 10%–15% of HCPs will misuse substances during their lifetime. [18,30,31] Trinkoff A et al, 1998, studied the prevalence of past-year substance use for all substances among 4438 of the US registered nurse and it was 32% [32].

Almost 28.6% of pregabalin abuser utilized it for euphoria compared to 42.9% for stress management with recorded statistical significance ( $p = 0.005$ ). In clinical trials pregabalin induced euphoria occurred as a side effect ranged from 1% to 10% of patients depending on dose as our study reported. Merlo et al, 2013, examined reasons for first and continued substance use among HCPs which was significant to feel good/get high opposite to our finding [31]. On the other hand, stressful environment due to manpower shortages in the healthcare system in general, substance induced impairment among some healthcare professions is anticipated to grow which support our result [15,33].

The current study showed 52% abused more than one drug at a time which resemble the results with another drugs addiction [10,11,18,34,35]. Many case reports found the abuse of pregabalin in patients prescribed for medical disorders such as pain management, GAD, and treatment of neuropathic pain and particularly evident among those individuals with previous histories of polysubstance abuse [36-38]. Also, we found 52.4% of the studied sample developed withdrawal symptoms when stopping or decreasing the dose of pregabalin concur with previous studies in pregabalin abuse [29,39]. We found around 19% had medical problems due to abusing pregabalin, similarly Dart et al., the rate of pregabalin abuse cases with medical outcomes ranging from moderate health effects to death [40].

Our findings are better to be interpreted in the light of the following limitations. First limitation concerns about the self-rated questionnaire. Self-reported answers may be exaggerated; respondents may be too embarrassed to reveal private details; various biases may affect the results. Therefore, using clinician-rated scale or structural clinical interview would be better. Further, on a self-report questionnaire, there is always the potential for recall bias, where participants may not remember details of their substance use accurately. Third, the cross-sectional study design precluded the finding of any causal association. Fourth, this sample was drawn from a single province in Saudi Arabia, limiting the generalizability to the greater population of HCs. Despite this, we note that this is the first study examined the prevalence of pregabalin among HCPs nationally and internationally.

## Conclusion

The current research revealed that about one every nine medical staff use pregabalin and nearly half of them use it without medical prescription. Utilization rate was higher among young physicians and paramedical staff in special concern. Stress relief and euphoria sensation were the major factors behind abuse as many other drugs. Our findings confirmed previous studies examining the pregabalin abuse potential, risk factors and consequences. Also, It has been addressed what is already known about substance use disorders among HCPs. More supervision and regulations for pregabalin prescription and acquisition are required to avoid the abuse among the medical staff that can get it easily due to their job nature.

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