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Research Article

IRRATIONAL DISPENSING AND SELF MEDICATION OF BENZODIAZEPINES BY GENERAL POPULATION OF A BIG CITY

Huda Kafeel[1]*, Ramsha Rukh[1], Javeid Iqbal[3], Safila Naveed[2]
[1]Lecturer, Faculty of Pharmacy, Jinnah University for women, Nazimabad, Karachi, Pakistan
[2]Associate Professor, Faculty of Pharmacy, Jinnah University for women, Karachi, Pakistan
[3] Vice Chancellor, Professor, University of Baluchistan, Pakistan
*Corresponding Author Email: huda_kafeel@hotmail.com
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ABSTRACT
A systematic observational study is performed in general population of age group 18-60 years to collect enough data on the irrational dispensing pattern and self medication of benzodiazepines. There were two separate specially designed Performa's, one for the OPD pharmacy or dispensary in different communities of Karachi and one for the general population of variable demographic status duly filled by 190 out of 200 OPD pharmacies approached, (n = 190 with response rate 95 %) and 478 out of 508 people approached (n = 478 with response rate 94.09 %) In this study 478 individual participated. Mean age of population was 43.62 ± 17 years. 44.6 % were male (n = 213) and 55.4 % were female (n = 265) the common Benzodiazepines reported to be used by study population are Alprazolam 54 %, Bromazepam 40 %, Clorazepate, Lorazepam and Azolam 2 % each. The three primary reasons reported lead to the use of benzodiazepines by general population are depression 64 %, sleep disturbance 19 % and pain 17 %. There were 68 people (29 %) confessed that they are using it without any prescription from GP. By the Performa filled by OPD community pharmacies findings are benzodiazepines are the 6th largest selling drug class. Alprazolam and Bromezepam both are the top most selling benzodiazepines members 88.52 % followed by Lorazepam 6.39 %, Clorazepate 0.09 % and others 5.0 %. Among 190 pharmacies visited, around 79 pharmacies (41.57 %) reported to dispense benzodiazepines without prescription. Significant variable with respect to rate of use of benzodiazepines in the community were educational status, socio-economical background, occupation, marital status etc with $p < 0.000$ when Pearson chi-square test were applied.
Keywords: Benzodiazepines, Irrational, Dispensing, community, OTC

INTRODUCTION

Benzodiazepines are the most prescribed and consumed medication group in the world. Although benzodiazepines are used in the treatment of several psychiatric and non psychiatric disorders, they are generally safe and well tolerated, the potential for misuse and abuse is considerable.[1] The Established indications of benzodiazepines are anxiety and sleep disorders, seizures, epilepsy, muscle-relaxation, induction of amnesia, pre-medication and sedation in emergency medicine.[2] In recent years it has also been proven to be effective in the treatment of panic disorder.[2] since most drawbacks with the use of benzodiazepines arise from the long term use, recommendations, both for insomnia and anxiety disorders, have stressed the importance of short term use (up to 4 weeks for generalized anxiety and 1-2 weeks for acute insomnia).[3] Most developed countries have consistent data of benzodiazepine sales and consumption; however, data from developing countries is scarce, making health policies on the use of benzodiazepines a much tougher issue in these countries.[1] Khan MM; Reza H. In 1998 reported that easily OTC availability and its popularity as sleeping pills make the agent the preferred drugs for self poisoning in Pakistan. Of the 329 medication self-poisoning cases, 84 % were benzodiazepine overdoses. 44 % bought the benzodiazepine over the counter (OTC) for the purpose of overdose.[4] Long term use of benzodiazepines may cause physical dependency. Individuals, who unintentionally misuse benzodiazepines, use prescribed benzodiazepines inappropriately by taking them into higher doses than their doctor prescribed with an intention for longer duration after reemission of anxiety disorder.[5] Therefore the objective of this study is to collect enough data onto the self medication of benzodiazepines in different groups of people in Karachi, establish a correlation with their demographic variables, social background, and also determine its relation with the over the counter dispensing in different community pharmacies.

MATERIALS AND METHODS

The data presented here were collected from a survey of general population, outpatient departments and community pharmacies; by means of specially designed Performa's one for the OPD pharmacy or dispensary in different communities of Karachi having questions regarding generic and brand sale per day and per week as well etc, duly filled by 190 out of 200 OPD pharmacies approached, (n = 190 with response rate 95 %) and one for the general population of variable demographic status such as age, weight, marital status, educational professional and social backgrounds, filled by 478 out of 508 people approached (n = 478 with response rate 94.09 %) the survey was conducted over a period of 30 days. data was analyzed by using SPSS version 19. Since our study was not experimental and did not involve any intervention, we did not approach any ethics committee for review before conducting the study although we took informed consent from all participants and maintain strict confidentiality. The collected data were analyzed by standard statistical methods for appropriate findings.

RESULTS AND DISCUSSION

This observational study is being conducted into two segments in 1st segment 478 individual participated belonging with the different professional backgrounds, education status, Socio-economical Status and demographic variables having or not a history of use of benzodiazepines with or without prescription. Mean age of total sample was 44.62 ± 17 years. Among them 44.6 % were male (n = 213) with mean of age

48.72 ± 17 years and 55.4 % (n = 265) were female with mean of age 40.59 ± 17 years.(Table 1) The study sample data report that the commonly used benzodiazepines are Alprazolam 54 %, bromazepam 40 %, clorazepate, Lorazepam and azolam 2 % each. (Figure 1) The co morbid conditions in individuals with benzodiazepines use other than psychiatric disturbances are hypertension (41. 5 %), diabetes mellitus (23 %) and heart diseases (5.3 %). Hypertension and diabetes were coexistence in (10.7 %) patients and 19.5 % of people were without any co morbid condition. (Table 2) co-morbidities such as hypertension, get worsen with stress or anxiety thus sometime general practitioners co-prescribe Alprazolam with antihypertensive agents for better control and relief.[6] Similarly, stress is also recognized as a negative modifier of health status in the patients with type 2 diabetes as stress release of counter regulatory hormones and then energy mobilization may appear as hyperglycemia. In addition, patients with psychiatric disorders may have effects on diet, exercise, and other self-care habits and thus use of benzodiazepines coexists with hypoglycemic agents in patients with hyperglycemia.[7] The mechanism by which anxiety influences outcome in ischemic heart disease remains largely unknown. But it also been observed that electrocardiographic (ECG) QT interval prolongation is the common demonstrated sign in patients with anxiety which is a clear reflective of their sensitivity towards arrhythmias.[8] Additionally in patients of anxiety and stress sympathetic system is excessively regulated in these patients thus increase catecholamine production can explain their state of hypertension, hyperglycemia and ventricular arrhythmias. Additionally Benzodiazepines, such as alprazolam, clonazepam, diazepam, and lorazepam, are safe and effective drugs for the treatment of anxiety in patients with CAD, with or without co-morbid depression.[8] Three primary reasons reported leads to the use of benzodiazepines by general population are depression + anxiety 64 %, sleep disturbance 19 % and pain 17 % (Figure 2). Benzodiazepines are used to relieve nervousness and tension or improve sleep disturbances. It is also used to relieve symptoms of alcohol withdrawal such as tremors, or used as an anticonvulsant or skeletal muscle relaxant.[9] Use of benzodiazepines among general population is mainly to relief depression and anxiety and their established and documented data shows that they are well-tolerated, safe and effective in controlling these conditions but only at short term use. Their long term use is associated with the tolerance and physical dependency or nervous disturbances like psychomotor, cognitive, or memory impairments. There were 68 people (29 %) confessed that they are using it without any prescription from General Practioner. The sources they report for the start of the use of benzodiazepines are prescribed to any other family member for same indication 11 %, on friends or relatives recommendation for same indication 7 %, by media 5.5 % and from medical book 3.5 % (Figure 3). Benzodiazepines are available over the counter; they can be acquired easily by any medical store, requirement of prescription is not mandatory in many areas, that is the reason why benzodiazepines is one of the major class of drug of self harm and substance induced suicidal attempts in third world countries.[10] Alprazolam is one of the benzodiazepine which is registered and available over the counter by around 20 trade names and available over the counter.[10] A report of 2008 suggest that Benzodiazepines (31.3 %) and organophosphate (OP) compounds (21.3 %), and remaining were the miscellaneous drugs were commonly used for DSP in a medical unit of a big city of Pakistan.[11] About 18 % of study sample are those that continue to use benzodiazepines which was prescribed to them for treatment of short term depression or insomnia but they remain continue to use them without any further consultation with general practionear. Most importantly 8 % of them also reported that they have increased the dose up to double than prescribed, in the past one year to achieve the desired effect. This behavior of drug abusers reflects phenomenon of tolerance commonly associated with benzodiazepines use. Another important finding targeted in 8 % of study sample is that the users claim that they are unable to sleep well or even may suffer from insomnia if they are not taking their routine Alprazolam dose. This finding indicates the development of physiological dependency in the targeted 8 % individuals. Further it is also been noticed that female ratio of benzodiazepine use is quite high by the male ratio with significant value $p < 0.000$ (Table 2) As female population experience more hormonal instability as compare to male population. There were few female participants who were experiencing post partum depression similarly a few were ammenoric due to polycystic ovary or eating habits and thus experiencing hormonal imbalance. Changing levels of sex hormones like estrogen, progesterone, and androgen are thought to be linked with the mood swings of an individual. As hormones level decrease it is appear as depressive state of mind, sadness and hopelessness. 7 % of females were using benzodiazepines for depression induced by menopause as post menopause is one of low estrogen state and thus results is drop in mood leads to depression.[12] In the second segment of the study about 190 community based pharmacies and OPD pharmacies were visited and it is observed that benzodiazepines are the 6th largest selling drug class. Alprazolam and Bromezepam both are the top most selling benzodiazepines members 88.52 % followed by Lorazepam 6.39 %, Clorazepate 0.09 % and others 5.0 % (Figure 4). It was quite shocking finding that about 79 pharmacies (41.57 %) reported to dispense benzodiazepine without any prescription. This irresponsible behavior of benzodiazepine dispensing and its self medication by general population are in connection with one another and contributing factors of indiscriminate and irrational benzodiazepine use. The unregulated over-the-counter sales of benzodiazepines and social conditions might be playing a role in this high consumption of benzodiazepines in the community.[13]

CONCLUSION

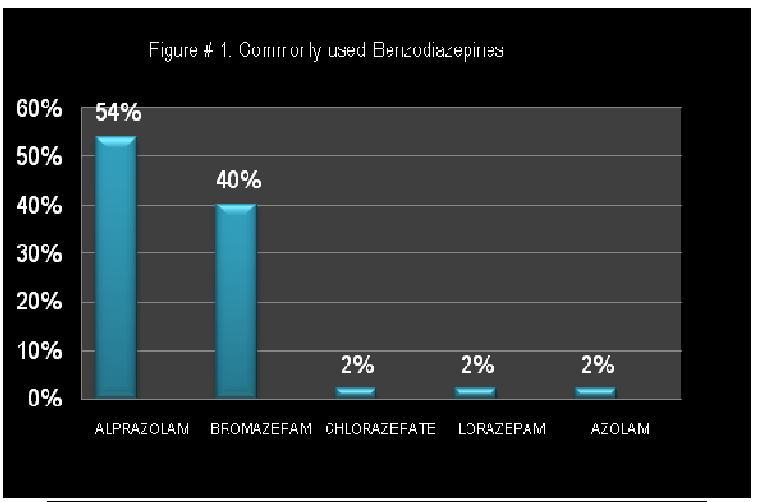
The study report highlights that the overall utilization of the benzodiazepines is increased in major population indicating an increasing trend of self-medication. It's indiscriminate dispensing, ignoring behavior by regulatory authorities and lack of awareness regarding their adverse effects and tendency of producing dependency and tolerance, are the contributing factors in the irrational use of benzodiazepine class. More responsible behavior of medical community and continuous awareness programs can decrease the associated risk of this problem and sensitization of authorities is necessary to control the irrational dispensing and use of benzodiazepines.

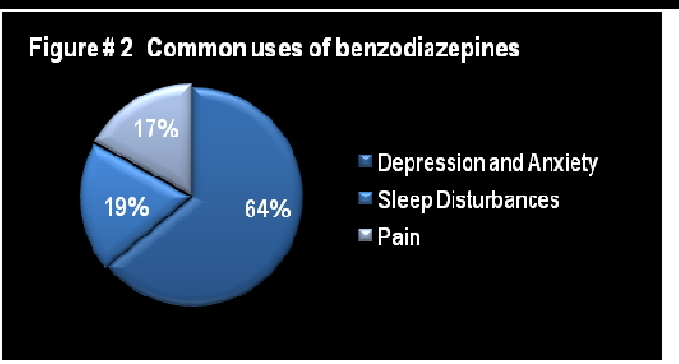
Table 1: Demographic variables affecting use of benzodiazepines in community

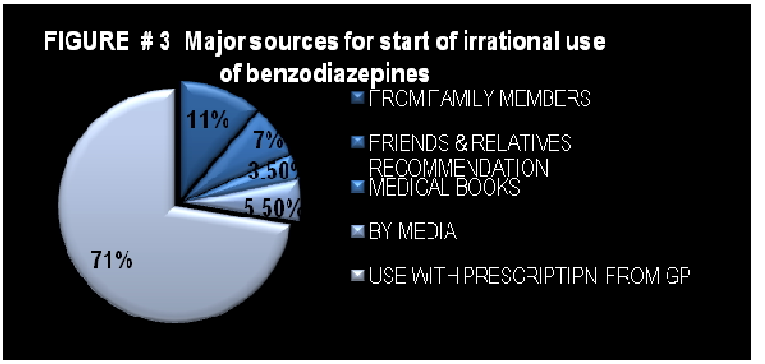
Demographic Factors		Users of Benzodiazepines (N = 299)		P-Value
		n	% value	0.000
Gender	Male	105	35.1	
	Female	194	64.9	
Age (Years)	26-30	33	11.0	0.170
	31-35	29	9.7	
	36-40	43	14.4	
	41-45	87	29.1	
	46-50	25	8.4	
	51-55	45	15.1	
	56-60	37	12.4	
Education Level	Primary	32	10.7	0.000
	Secondary	95	31.8	
	Graduate	140	46.8	
	Post Graduate	32	10.7	
Nature of Work	Clerk/labor	14	4.7	0.000
	Industrial//Office	128	42.8	
	Academics	87	29.1	
	Student	19	6.4	
	Housewife	51	17.1	
Socio-economical Status	Low	34	11.4	0.000
	Middle	210	70.2	
	Upper	55	18.4	
Marital Status	Single	93	31.1	0.000
	Married	188	62.9	
	Divorced	18	6.0	

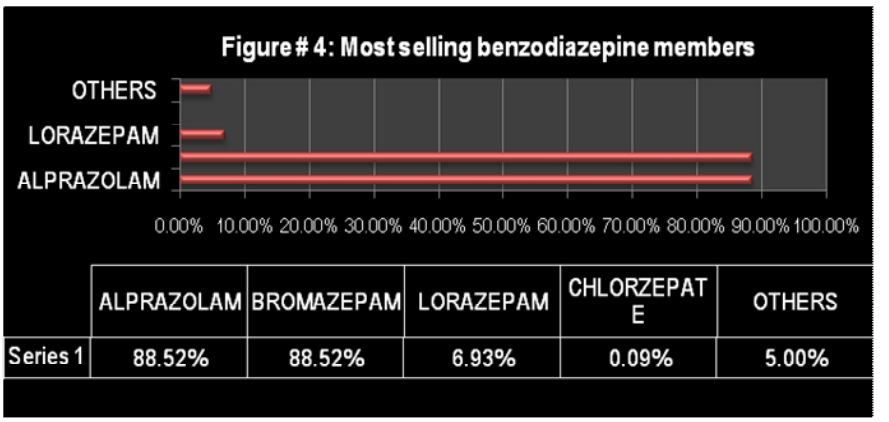
Table 2: Existence of co-morbid conditions with psychiatric disturbances

Co-morbid conditions	Prevalence (%)
Hypertension	41.5 %
Diabetes mellitus	23 %
Heart diseases	5.3 %
Hypertension + diabetes mellitus	10.7 %
Without any co morbid condition	19.5 %









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