ORIGINAL ARTICLE

BENZODIAZEPINE USE AMONG RESIDENT DOCTORS IN TERTIARY CARE HOSPITAL

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Background: Benzodiazepines (BZD) are some of the most common medications in the world. Benzodiazepines useful in treating anxiety, insomnia, agitation, seizures, muscle spasms, alcohol withdrawal. Benzodiazepines are generally considered safe and well tolerated but are commonly misused and taken in combination with other drugs of abuse. The usage and prescription of BDZ in most developed countries are tightly regulated. This is however, not true in developing countries where these medicines are available over-the-counter (OTC). This study was carried out to assess the benzodiazepine use in Ayub Teaching Hospital Trainee doctors. **Methods:** This was a cross sectional study carried out in Ayub Teaching Hospital between January and December 2018. Sample size was calculated to be 276 using WHO sample size calculator. These 276 residents and house officers were selected using stratified random sampling to ensure the representation from every year of residency. **Results**: Hundred and nine (48.7%) participants responded positively to the use of BZD. Male doctors were more likely 57 (52.3%) to use BZD as compared to their female colleges. Most of the doctors 71 (65.1%) purchased BZD over the counter without prescription. Alprazolam was the most preferred benzodiazepine by doctors regardless of their specialty and year of residency except in specialty of Anaesthesia in which prevalence of Midazolam was the highest. This preference of Alprazolam by doctors of all specialty was statistically significant (p=0.007). **Conclusion:** Because of the knowledge about medicines and tendency to self-treat, doctors are prone to BZD abuse. Doctors working in psychiatry are more likely to use BZD with Alprazolam the BZD of choice.

Keywords: Benzodiazepines; Alprazolam; Drug Abuse; Resident Doctors

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INTRODUCTION

Benzodiazepines (BZD) are a class of psychoactive drugs. Leo Sternbach is credited with discovering BZD, the main class of tranquilizers.[1] In 1977 BZD were globally the most prescribed medications.[2] BZD enhance the effect of the neurotransmitter Gamma Amino Butyric Acid (GABA) at the GABAA receptor, resulting in sedative, hypnotic (sleep-inducing), anxiolytic (anti-anxiety), anticonvulsant, and muscle relaxant properties. These properties make BZD useful in treating anxiety, insomnia, agitation, seizures, muscle spasms, alcohol withdrawal and as premedication for medical or dental procedures.[3] Benzodiazepines are generally considered safe and well tolerated but are commonly misused and taken in combination with other drugs of abuse.[4–6] Dependence on BDZ and withdrawal symptoms experienced by the user is directly associated with the duration of use.[7] Patients using BDZ for more than four months usually experience some or all of the withdrawal symptoms which include anxiety, dysphoria, malaise, depersonalization or perceptual changes such as hyperacusis and unsteadiness.[8]

The usage and prescription of BDZ in most developed countries are tightly regulated. This is however, not true in developing countries where these medicines are available over-the-counter (OTC).[9,10] In Pakistan, BDZ popularity as sleeping pills and easy over the counter availability make them the favoured drugs for attempted suicide.

Benzodiazepine's over the counter availability has many reasons. Public sector health facility utilization is low as compared to private health care which is mostly un-regulated. Benzodiazepines are prescribed extensively by general physicians, at times moonlighting for pharma companies. Hence, patients are more prone to addiction and dependence. Currently there are research gaps exploring this issue. Benzodiazepines are some of the most common medications in the world; a recent study sponsored by the National Institutes of Health found that about 1 in 20 adults received a prescription for them in 2008.[11] Benzodiazepine use has increased in the United States and is associated with dramatic negative consequences, according to a pair of previous studies. In research by Olfson and colleagues that appeared in the February 2015 issue of JAMA Psychiatry, the authors found that 5.2% of US adults between the ages of 18 and 80 years used a BZD.[12]

Mental illness remains one of the most entrenched areas of stigma in contemporary perception of disease. Awareness programs like mental health day and mental health moth try to bring mental health and illness to the lime light, yet those who should be leading the fight to de-stigmatize mental illness, continue to foster the same stigma by their actions and words. Many doctors are in denial when it comes to mental health and illnesses. They neither realise and want to admit that they are mentally ill, which with their high stress jobs, has resulted in significantly high rates of suicide.

Many studies have been conducted upon BZD and many articles have been published all over the world but this is first time that such study has been conducted in Pakistan. The purpose of this study is to assess the misuse of benzodiazepine among trainee doctors in Ayub teaching hospital Abbottabad. As we know Abbottabad is a small town with diverse population. Doctors come from different parts of Khyber Pakhtunkhwa many belonging to tribal areas. Stigma related to mental illness is greater in this part of country as compared to bigger cities.

Reason being lack of awareness and not considering mental health as important as physical health and also the taboo is so strong even among the doctors that they consider it inappropriate to discuss their mental health issues openly which reflects the prejudice against mental disorders as people with mental illness typically do not receive same kind of attention and quality care as compared to their peers without mental illness. This study was carried out to assess the benzodiazepine use in Ayub Teaching Hospital Trainee doctors and also to gauge the magnitude of problems associated with over the counter availability of benzodiazepine

MATERIAL AND METHODS

This was a cross sectional study carried out in Ayub Teaching Hospital between January and December 2018. Sample size was calculated to be 276 using WHO sample size calculator. These 276 residents and house officers were selected using stratified random sampling to ensure the representation from every year of residency.

Data from the enrolled subjects was collected using structured questionnaire. The questionnaire included demographic characteristics, speciality, tier of residency and drug use etc. The questionnaire was based on the National Institute on Drug Abuse's Monitoring the Future study conducted at Michigan University.

The sample of 276 was stratified according to their year and allotting 46 in each of the 6 sub-groups of house officers, year 1 residents, year 2 residents, year 3 residents, year 4 residents and year 5 speciality residents. Prevalence of drug use of residents of each speciality and residency year was compared with others. Confidentiality of the doctors was ensured and data was analysed using SPSS 20. Statistical significance was calculated by Chi-Square test for the stratified samples.

RESULTS

The overall response rate was 81.15% (n=224). The mean age of the study participants was 27.5 ±2.8 year. Most of the participants 122 (54.5%) were male. Of the total 224 responding participants, highest 100 % response was achieved from house officers and year 2 residents each (n=46). Most of the participants belonged to speciality of Medicine 111 (49.6%) followed by Surgery 52 (23.2%) table-1

Hundred and nine (48.7%) participants responded positively to the use of BZD. Male doctors were more likely 57 (52.3%) to use BZD as compared to their female colleagues. Most of the doctors 71 (65.1%) purchased BZD over the counter without prescription. The most common reason they cited for use of BZD was insomnia. Table-2.

Of the total 109 BZD users, most 37 (33.9%) were house officers and doctors working in Doctors working in Psychiatry had the highest rate of BZD usage, i.e., 100% followed by doctors working in Surgery department 63.5%. Table-3.

Alprazolam was the most preferred benzodiazepine by doctors regardless of their specialty and year of residency except in specialty of Anaesthesia in which prevalence of Midazolam was the highest. Table-4. This preference of Alprazolam by doctors of all specialty was statistically significant (p=0.007)

No significant association was found between gender and year of residency with either use or type of BZD. Quitting BZD was reported to be a non-issue in majority of the doctors 93 (85.3%) and only 16 (14.7%) reported difficulty in quitting the benzodiazepine and were currently still using them. The biggest reason for dependency was sleep disturbance in 11 (68.7%) of the users if they tried to quit. Twelve doctors reported that they were using BZD for more than 1 month.

Table-1: Residents and speciality

Year	Number	Percentage
1st year Resident	38	82.6
2nd year Resident	46	100.0
3rd year Resident	43	93.5
4th year Resident	35	76.1
5th year Resident	16	34.8
House Officer	46	100.0
Specialty	**Number**	**Percentage**
Medicine	111	49.6
Surgery	52	23.2
Gynae/Obs	35	15.6
Psychiatry	5	2.2
Anaesthesia	3	1.3
Cardiology	6	2.7
Others	12	5.4

Table-2: Conditions for use of BZD

Reason	Frequency	Percent
Anxiety	20	8.9
Seizures	1	0.4
Insomnia	55	24.6
Job related stress	8	3.6
Palpitations	1	0.4
Pre-exam stress	24	10.7
Total	109	100.0

Table-3: Doctors and their specialities using BZD

Specialty	Doctors using BZD	Total Interviewed	Percentage
Medicine	46	111	41.4
Surgery	33	52	63.5
Gynae/Obs	16	35	45.7
Psychiatry	3	3	100.0
Cardiology	3	6	50.0
Anaesthesia	2	5	40.0
Others	6	12	50.0

Table-4: Frequency of BZD usage

Year of Residency	Department/Specialty	Benzodiazepine	Frequency	Percentage
1st year	Medicine	Bromazepam	2	13.3
		Lorazepam	1	6.7
		Alprazolam	6	40.0
		Diazepam	2	13.3
	Surgery	Midazolam	2	33.3
		Alprazolam	2	33.3
	Gynae/Obs	Bromazepam	1	16.7
		Midazolam	1	16.7
		Alprazolam	3	50.0
	Total		**20**	**18.34**
2nd year	Medicine	Bromazepam	2	7.4
		Lorazepam	2	7.4
		Alprazolam	8	29.6
	Surgery	Alprazolam	3	60.0
	Gynae/Obs	Alprazolam	2	25.0
	Psychiatry	Bromazepam	1	50.0
	Anaesthesia	Midazolam	1	50.0
	Cardiology	Alprazolam	1	50.0
		Bromazepam	1	50.0
	Others	Lorazepam	1	33.3
		Diazepam	1	33.3
	Total		**23**	**21.10**
3rd year	Medicine	Bromazepam	2	12.5
		Alprazolam	3	18.8
	Surgery	Lorazepam	1	16.7
		Alprazolam	2	33.3
		Diazepam	1	16.7
	Gynae/Obs	Bromazepam	2	28.6
		Alprazolam	1	14.3
	Anesthesia	Midazolam	1	100.0
	Psychiatry	Alprazolam	1	100.0
	Others	Alprazolam	2	100.0
	Total		**16**	**14.67**
4th year	Medicine	Bromazepam	1	11.1
		Lorazepam	1	11.1
		Alprazolam	2	22.2
	Surgery	Alprazolam	2	33.3
	Gynae/Obs	Alprazolam	2	25.0
		Diazepam	3	37.5
	Total		**11**	**10.9**
Final year	Medicine	Bromazepam	1	50.0
		System	1	50.0
	Surgery	Alprazolam	1	33.3
		System	2	66.7
	Cardiology	Alprazolam	1	100.0
	Total		**6**	**5.50**
House Officers	Medicine	Bromazepam	2	4.8
		Lorazepam	2	4.8
		Alprazolam	9	21.4
	Surgery	Bromazepam	2	7.7
		Lorazepam	3	11.5
		Alprazolam	14	53.8
	Gynae/Obs	Alprazolam	1	16.7
	Psychiatry	Alprazolam	1	33.3
	Cardiology	Alprazolam	1	50.0
	Others	Bromazepam	1	33.3
		Alprazolam	1	33.3
	Total		**37**	**33.9**

DISCUSSION

Benzodiazepines has been in use as an anxiolytic agent since early 1960s.[13] This class of drugs is used in the treatment of anxiety and sleep disorders, among other conditions for which their effectiveness is well established.[14,15] Although BZD are approved for short-term treatment, its long-term use is common and recognized as a relevant public health problem.[16,17] The unique situation with doctors is their knowledge about medicines and tendency to self-treat which make them prone to drug abuse or drug dependency. This study was carried out to assess the benzodiazepine use in Ayub Teaching Hospital Trainee doctors and also to gauge the magnitude of problems associated with over the counter availability of benzodiazepine.

As discussed, doctors are prone to abuse prescription drugs such as BZD. Study results showed that prevalence of BZD in doctors was 48.7% which is quite high as compared to other studies that suggest the prevalence of BZD between 3.8 and 22.7.[18,19] The results of our study show a significantly higher prevalence. This prevalence of BZD correlate loosely to the finding of survey conducted in health population on use of BZD which showed 30.4% of the people had used BZD.[20]

Most of the doctors (65.1%) that used BZD got them over the counter. This finding is consistent with the findings of study conducted on Indian medical students and doctors.[21] Men are more likely to abuse BZD[22] and same was indicated in the findings of this study. The most common BZD used by doctors was Alprazolam 68 (62.4%). Similar findings were reported in different studies indicating that Alprazolam is most frequently abused BZD as it provides rapid onset of action and subjective high.[22,23]

The study results concluded that doctors working in psychiatry have the highest prevalence of BZD usage. This finding is supported by several studies that have shown that prevalence of BZD is highest among doctors working in psychiatry as compared to other specialities.[19,24] The reason for high prevalence is explained by certain facts that the doctors working in psychiatry are more familiar with this class of drug and because the BZD form a major component of their therapeutic armament.[25]

CONCLUSION

Doctors are more prone to prescription BZD drug abuse. Psychiatrists have the highest prevalence of BZD usage owing to their knowledge and access to this class of drug. Alprazolam is the preferred BZD regardless of speciality and year of residency because of its quick action and subjective high.

AUTHORS' CONTRIBUTION

AAK: Conceptualization of study design, literature search and overall supervision. MZH: Statistical and Methodical help. HH: Data collection, Data analysis, literature search. IU: Data collection, data analysis. ANK & HN: Proof reading.

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