Prevalence of Benzodiazepines Misuse in Ubon Ratchathani Province Thailand

Sukdepat Puangkot MPH*, Wongsa Laohasiriwong PhD**,
Jiamjit Saengsuwan PhD***, Isara Chiawiriyabunya MD***

** Faculty of Public Health, Burapha University, Chonburi, Thailand*
*** Faculty of Public Health, Khon Kaen University, Khon Kaen, Thailand*
**** Faculty of Nursing, Khon Kaen University, Khon Kaen, Thailand*
***** Drug Dependence Treatment Center, Khon Kaen, Thailand*

Background: *Benzodiazepines misuse, abuse, and dependence is becoming a new problem in medicine used in Thailand.*
Objective: *Study the prevalence of benzodiazepines use, misuse, abuse, and dependence in Ubon Ratchathani province Thailand.*
Material and Method: *A cross-sectional household survey was conducted between October 2008 and June 2009. The target population were the people age 15 and above. A sample size of 2,280 was selected from three stage stratified random sampling. Benzodiazepines were identified with generic name and drug characteristics. The DSM-IV questionnaires were used to define misuse, abuse, and dependence. Dependence was interpreted with judgment of a psychiatric nurse. For statistical analyses, prevalence was estimated with weight adjustment, variances estimated by Teylor Series Linearization method, and interpreted with 95% CI.*
Results: *There were 46,805 current users [3.9% (95% CI: 2.2-6.4)], 26,404 misuser [2.2% (95% CI: 1.6-6.2)], 7,203 abuser [0.6% (95% CI: 0.1-4.1)] and 2,402 dependent [0.2% (95% CI: 0.1-9.2)]. When considering the group of current user, the results showed that 57.2% of this group misused, 16.6% abused and 5.9% were dependent.*
Conclusion: *Prevalence of use was higher than previously reported in Thailand while more than half of the current users misused. Surveillance of misuse should be done in the group of current user. Medical professional should give recommendations to patients, focusing on harm of misuse. Furthermore, they should limit the amount of medicine when it is necessary to dispense.*

Keywords: *Benzodiazepines (BZDs), Misuse, Abuse, Dependence, Prevalence*

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Benzodiazepines (BZDs) are psychotropic medicines that are widely prescribed for anti-anxiety disorders, insomnia, epilepsy, and other psychiatric conditions[1]. BZDs misuse are associated with increased risk of tolerance, many adverse drug effects, risk of fall in the elderly, increased motor vehicle accidents, abuse, and dependence[2,3]. BZDs abuse and dependence is a critical problem in many countries. Non-medical use is associated with several social and economic consequences[4].

In Thailand, the pharmacoepidemiology of BZDs use in contemporary condition has been inadequately described. No previous study in Thai has directly detected BZDs misuse, or the use of DSM- IV's criteria to interpret the misuse, abuse, and drug dependence of BZDs at the general population level. Several previous studies looked at BZDs abuse, but were carried out by using only omnibus questionnaires related to sleeping pills, tranquilizers, or sedative-hypnotics. In those studies, people might deny because they did not understand medicine classifications. Thus, a low accuracy could occur. This is because many medicines, such as antihistamines or muscle relaxants, affect the sleep. Thus, the present study aimed to determine the prevalence of drug abuse including misuse and drug dependence of BZDs in Ubon Ratchathani province. The outcomes of the present study will be used to improve the knowledge of people in the northeastern part of Thailand.

Correspondence to:
Puangkot S, Department of Health Education, Faculty of Public Health, Burapha University, Chonburi 20131, Thailand.
Phone: 08-2159-3017
E-mail: sukdepat@gmail.com

Material and Method

Study design and sampling technique

The proposal was reviewed and approved by the Ethical Committee for Human Research of the Faculty of Medicine, Khon Kaen University, Thailand (Ref. Number: HE510507). A household survey research was conducted between October 2008 and June 2009 in Ubon Ratchathani, the secondary biggest province of the northeastern region Thailand. The study covered the population age at least 15 years old (1,257,719), block/village (3,016) and household (443,886). The sample size consisted of 2,280 participants from 790 individual households obtained from three stage stratified random sampling. The first stage was a probability proportional to size (PPS) to select the district. The second was simple random sampling (SRS) to select community-block/village stratified in municipal and non-municipal area. The third was a systematic random sampling (SSRS), which selected households in each block and interviewed only people who were willing to be participants in the present survey.

Data collection and statistics analysis

The present study arranged a sample of BZDs that was found in the province to compare types of medicine. The psychotropic and Narcotics Drug Book (PN-DEX Thailand 2004), which covered all BZDs from all companies, was used to interpret the characteristics of medicine, shape, size, trade name, and generic name. Misuse in the present study was unsupervised use, remained in medical use but self-medication without medical supervision such as, to adjust dose or time by themselves, etc. Abuse and dependence is an important subset of misuse that affected health more than misuse or unsupervised use. It is a technical term in psychiatric definition. In the present study, they were classified by DSM-IV criteria (revised version 1994), a tool of the international standard criteria from American Psychiatric Association (APA). Particular dependence was interpreted by judgment from a psychiatric nurse interviewer. All interviewers in the present study were in public health fields such as, pharmacists, nurses, public health officers, public health, and nursing students. They were trained in the interview technique and the work was monitored by field supervisors. The definition of current use was using in that month and use more than 20 days or use continuously until the day of interview.

For the statistical analyses, prevalence was estimated with weight adjustment. Weight adjustment was calculated and adjusted by sampling method, health service area, demographic characteristics, and non-response. Variance was estimated by Teylor Series Linearization method[5] and was interpreted with 95% CI. The data were analyzed with the program STATA version 10.0.

Results

It was found that approximately 46,805 people currently use (3.9% [95% CI: 1.2-7.4]), 26,404 misuse (2.2% [95% CI: 1.6-6.2]), 7,203 abuse (0.6% [95% CI: 0.1-4.1]) and 2,402 are dependent (0.2% [95% CI: 0.1-9.2]) (Table 1). When considering misuse behaviors of the particular group of people who currently used, it was found that 42.8% of current use was appropriate use, 57.2% was misuse, 16.6% was abuse and 5.9% was dependence (Table 2). The results showed that characteristics of the misuse group were 60.7% of unsupervised use, abuse (29.0%), and dependence (10.3%) (Table 2).

Legal BZDs in Ubon Ratchathani can be obtained from a hospital, Primary care Unit (PCU), or doctor's private clinic. Some types in the psychotropic

Table 1. Estimated benzodiazepines misuse in Ubon Ratchathani province

Characteristics (n = 2,280)	Point estimated in population	$\%^{W}$ (95% CI)^{T}
Current use	46,805	3.9% (95% CI: 1.2-7.4)
Misuse	26,404	2.2% (95% CI: 1.6-6.2)
Abuse	7,203	0.6% (95% CI: 0.1-4.1)
Dependence	2,402	0.2% (95% CI: 0.1-9.2)

Point estimated in population is estimated number of people who used BZDs in real population age at least 15 year old (1,257,719)

$\%^{W}$ from weight adjustment

^{T} estimated variances from Teylor Series Linearization method

Table 2. Proportion of benzodiazepines misuse group

Characteristics	Number	%
Current use group (n = 187)		
Appropriate use	80	42.8
Misuse	107	57.2
Unsupervised use[b]	65	34.7
Abuse[a]	31	16.6
Dependence[a]	11	5.9
Misuse group (n = 107)		
Unsupervised use[b]	65	60.7
Abuse	31	29.0
Dependence	11	10.3

The proportion of this table calculated without weight adjustment

[a] Abuse and Dependence is an important subset of misuse but danger than misuse or unsupervised use, this study classified with DSMIV criteria

[b] Unsupervised use; remained in medical use but self-medication without- medical supervision such as, adjust dose or time by themselves, etc

Table 3. Type of benzodiazepine used among misuse people

Characteristics	%[a]
Type of Benzodiazepine	
Diazepam	71.2
Clorazepate dipotassium	30.1
Lorazepam	14.1
Alprazoram	11.2
Clodiazepoxide	7.1
Midazoram	4.3

[a] Answer more than 1 choices

class 4, such as Diazepam, Lorazepam, Alprazolam, and Clorazepate Dipotassium can be purchased from a Pharmacy by a doctor's prescription. In the present study, most of the users received a medicine from a government hospital and primary care unit.

Proportion of types of BZDs used among the misuse group was identified in the present survey. It was found that people have experienced BZDs use in many types of medicine. The highest proportion of benzodiazepine used among the misuse was Diazepam (71.2%), Clorazepate Dipotassium (30.1%), Lorazepam (14.1%), Alphazolam (11.2%), Clodiazepoxide (7.1%), and Midazolam (4.3%) (Table 3).

Discussion

Diazepam, Lorazepam, and Clorazepate Dipotassium are types of BZDs that were found in the present survey. Almost all BZDs were licit medicine and were received from government hospitals and primary care units (PCUs). Most people used government public health system services as compared to private services. The current policy limits the amount of BZDs in a doctor's private clinic and pharmacy while hospital has more resources.

It is difficult to make meaningful comparisons with previous studies because of many different methodological approaches. However, the prevalence rate of the present study was higher than previous studies that look into anxiolytics or sedative-hypnotics use and misuse in Thailand. They found only 0.2- 0.6% of current use and 1.58% of misuse[6,7]. We have not found any previous study in Thailand that measured BZDs abuse and dependence in a large-scale survey, particularly classified with international standard criteria such as the DSM-IV questionnaire in the general population.

When comparing with other countries, the prevalence rate of current use, misuse, and abuse of the present study (3.9%, 2.2%, 0.6, 0.2%) was lower than reports from other developing countries such as Brazil, Lebanon, Egypt and Philippines (5-15%)[8,9] and greatly lower than developed countries such USA, Canada, France, and England (7-18%)[10-12]. However, in a developing country such as Thailand, the small prevalence have been increasing in problems, especially when considering the chance of misuse related with other substances that can have a disproportionately large effect on overstretched resources[13]. If focusing on percentage of the present study, people who misuse, abuse, and depend were low, but the estimated number of people who misuse (26,404), abuse (7,203) and depend (2,402) showed that obvious problems in the province were substantial.

BZDs were the drugs that were most frequently misused (57.2% of misuse in current use). This reflected that behaviors of misuse easily occurred. Thai doctors at community hospitals level realized that they had short assessments. They accepted that they might inappropriately prescribe BZDs because of workload and the increased number of patients[15].

BZDs use has been continuously increasing in value (FDA, 2005) as they are useful and available for medical use[16]. Nevertheless, BZDs misuse is the main cause to tolerance, adverse drug effect, and dependence. This result reflects that prevalence of

misuse, abuse and dependence are increasing and are becoming a hidden problem, which the local health system should consider.

In conclusion, the sample of the present study is a good representation of province when compared with actual population database. Especially, when considering in aspects such as appropriated probability sampling, distribution of urban or rural area and association between health-service systems. However, the present study had limited selection of individual households and excluded other residential types such as dormitories, apartments, and military camps, which might lose some important data. However, BZDs use and misuse in Issan communities are higher than a previous study in Thailand. More than half of the current users are misuser. Therefore, health systems should emphasize on monitoring patients who are risk groups. Doctors and public health officers should control medicine by limiting the amount of medicine when it is necessary to dispense. Moreover, medical professionals should increase efficiency of recommendations by focusing on medicine content that will harm when it is misused so that patients will realize the dangers.

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Potential conflict of interest

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References

1. World Health Organization. The world health report. Geneva: WHO; 2007.
2. Longo LP, Johnson B. Addiction: Part I. Benzodiazepines—side effects, abuse risk and alternatives. Am Fam Physician 2000; 61: 2121-8.
3. Hemmelgarn B, Suissa S, Huang A, Boivin JF, Pinard G. Benzodiazepine use and the risk of motor vehicle crash in the elderly. JAMA 1997; 278: 27-31.
4. United Nation Office on Drug and Crime. World drug report 2006**.** New York: United Nation; 2007.
5. Department of Economic and Social Affairs Statistics Division. Household surveys sampling in developing and transition countries. New York: United Nation; 2005; 447-486.
6. Assanangkornchai S, Sam-Angsri N, Rerngpongpan S, Edwards JG. Anxiolytic and hypnotic drug misuse in Thailand: findings from a national household survey. Drug Alcohol Rev 2010; 29: 101-11.
7. Health System Research Instituted Thailand. Report of Thailand health survey. 3rd during year 2003-2005. 2007: 154-5.
8. International Narcotics Drug Control Board. Report of international narcotic control board for 2004. New York: United Nation; 2005.
9. Naja WJ, Pelissolo A, Haddad RS, Baddoura R, Baddoura C. A general population survey on patterns of benzodiazepine use and dependence in Lebanon. Acta Psychiatr Scand 2000; 102: 429-31.
10. Kassam A, Patten S. Canadian trends in Benzodiazepine & Zopiclone use. Can J Clin Pharmacol 2006; 13; e121-7.
11. Goodwin RD, Hasin DS. Sedative use and misuse in the United States. Addiction 2002; 97: 555-62.
12. Ohayon MM, Lader MH. Use of psychotropic medication in the general population of France, Germany, Italy, and the United Kingdom. J Clin Psychiatry 2002; 63: 817-25.
13. Assanangkornchai S, Chittrakarn S. Situational review of prescription drug abuse between 2000 and 2004. In: Poshyachinda V, Perngparn U, editors. Situational review of substance-related problems in Thailand between 2000 and 2004. Bangkok: Drug Dependence Research Center, Chulalongkorn University; 2000: 105-36.
14. Srisurapanont M, Garner P, Critchley J, Wongpakaran N. Benzodiazepine prescribing behaviour and attitudes: a survey among general practitioners practicing in northern Thailand. BMC Fam Pract 2005; 6: 27.
15. Office of Food and Drug Administration. Supply of psychotropic drugs for use in medical practices between 2000-2004. Nonthaburi: Ministry of Public Health Thailand; 2005.
16. Saipanish R, Zartrungpak S, Silpakit C. A survey of psychotropic drug prescription of general practitioners in primary care settings. J Psychiatr Assoc Thai 1998; 43: 316-24.

ความชุกของการใช้ยากลุ่มเบนโซไดอะซีปีนส์อย่างไม่เหมาะสมใน จังหวัดอุบลราชธานีประเทศไทย

ศักดิภัทร พวงคต, วงศา เลาหศิริวงศ์, เจียมจิต แสงสุวรรณ, อิสระ เจียวิริยะบุญญา

***วัตถุประสงค์**: เพื่อศึกษาความชุกของผู้ใช้ยานอนหลับยากล่อมประสาทกลุ่มเบนโซไดอะซีปีนส์ และการใช้อย่างไม่เหมาะสมของประชาชนทั่วไป ในจังหวัดอุบลราชธานี ประเทศไทย*

***วัสดุและวิธีการ**: เป็นการศึกษาเชิงสำรวจระดับครัวเรือนเก็บข้อมูลระหว่างเดือนตุลาคม พ.ศ. 2551-มิถุนายน พ.ศ. 2552 ประชากรกลุ่มเป้าหมายคือประชาชนอายุ 15 ปีขึ้นไป จำนวนกลุ่มตัวอย่าง 2,280 คน สุ่มกลุ่มตัวอย่างโดยอาศัยความน่าจะเป็นแบบสามขั้น ตรวจสอบความถูกต้องของชนิดยาด้วยการสังเกตลักษณะยา ชื่อการค้า ชื่อสามัญทางยา วัดการใช้อย่างไม่เหมาะสม การใช้ผิด และติดยา ด้วยแบบสัมภาษณ์ DSM-IV ความถูกต้องของการติดยาตรวจสอบ และแปลผลด้วยพยาบาลจิตเวช สถิติที่ใช้คือการประมาณค่าความชุกร่วมกับการถ่วงน้ำหนักประมาณค่าความ แปรปรวนด้วย วิธี Teylor series linearization แสดงด้วยช่วงความเชื่อมั่น 95%*

***ผลการศึกษา**: มีผู้ใช้ยาในปัจจุบัน จำนวน 46,805 คน [3.9% (95% CI: 2.2-6.4)] ใช้ยาอย่างไม่เหมาะสม 26,404 คน [2.2% (95% CI: 1.6-6.2)] ใช้ผิด 7,203 คน [0.6% (95% CI: 0.1-4.1)] และติดยา 2,402 คน [0.2% (95% CI: 0.1-9.2)] เมื่อพิจารณาเฉพาะกลุ่มผู้ใช้ยาในปัจจุบันพบว่า กลุ่มผู้เคยใช้ยานี้เป็นผู้ใช้ยาอย่างไม่เหมาะสมถึง 57.2% ใช้ผิด 16.6% และติดยา 5.9%*

***สรุป**: ความชุกของการใช้ยาทุกประเด็น พบมากกว่าการศึกษาในอดีตของไทย ขณะที่มากกว่าครึ่งของผู้ใช้ยาเป็นผู้ใช้อย่างไม่เหมาะสม ดังนั้นควรดำเนินการเฝ้าระวังการใช้ยาอย่างไม่เหมาะสมในกลุ่มผู้ใช้ยานี้ โดยบุคลากรทางการแพทย์ควรให้ความสำคัญต่อการให้คำแนะนำการใช้ยาโดยมุ่งเน้นให้เห็นถึงอันตรายจากการใช้ยาอย่างไม่เหมาะสม ประกอบกับควบคุมการจ่ายยานี้แก่ผู้ป่วยเท่าที่จำเป็น*