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<b>Author(s)</b>	<b>Chung, KF</b>
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# Benzodiazepine prescribing trend after its inclusion as a dangerous drug under the Hong Kong Dangerous Drugs Ordinance

KF Chung

Since January 1992, all benzodiazepines have been classified as dangerous drugs under the Dangerous Drugs Ordinance in Hong Kong. This legislative provision requires medical practitioners and pharmacists to keep a detailed record of their prescriptions of benzodiazepines. The present study looks at the impact of the provision on prescribing trends in the Hong Kong population and in a general psychiatric clinic. A comparison of the 1991 (baseline level) and 1994 figures reveals a 50% and a 10% reduction in the average yearly number of benzodiazepine prescriptions per person in the Hong Kong population and in the general psychiatric clinic, respectively. In particular, triazolam prescriptions had the greatest reduction. The findings are discussed in light of the possible changes of prescribing practice by medical practitioners after the new legislative provision came into effect.

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*Key words: Benzodiazepines; Anti-anxiety agents, benzodiazepine; Prescription, drug; Drug control*

## Introduction

Benzodiazepines (BZ) are one of the most frequently prescribed drugs in Hong Kong. They play an important role in the treatment of anxiety disorders, insomnia, and physical illnesses such as epilepsy.<sup>1</sup> Their use have been questioned due to public concerns about their adverse effects,<sup>2</sup> and liability to lead to physical dependence and abuse.<sup>3</sup> Because of an increasing number of young BZ abusers, all BZs have been classified as dangerous drugs under the Dangerous Drugs Ordinance in Hong Kong since January 1992. The new legislative provision requires medical practitioners and pharmacists to keep a detailed record of their prescriptions for these drugs. This study looks at the impact of the new provision on BZ prescribing trends by comparing prescriptions in 1991 (taken as a baseline) with figures from 1992 to 1994 in the general Hong Kong population as well as a general psychiatric out-patient clinic. Benzodiazepine prescribing in relation to the general Hong Kong population covers both therapeutic use

and possible abuse, whereas consumption in the psychiatric clinic mainly reflects their therapeutic use.

## Methods

The annual prescribing figures for BZs from 1991 to 1994 in the general Hong Kong population and in a psychiatric out-patient clinic were analysed separately.

### *Hong Kong population*

We obtained the yearly prescription figures from 1991 to 1994 of seven commonly prescribed BZs from the Pharmaceutical Service of the Department of Health, Hong Kong. The figures covered all prescriptions by registered medical practitioners and pharmacists in Hong Kong. The prescription unit was the number of tablets and capsules used. Our study was also based on the Hong Kong population figures aged 15 and above as published in the Annual Digest of Statistics by the Hong Kong Government.<sup>4</sup> For each year, the prescription of each of the seven BZs and the total BZ prescriptions per person aged 15 and above were analysed.

### *Psychiatric out-patient clinic*

We studied the yearly prescription figures from 1991 to 1994 for all types of BZs used in the Western Psychiatric Centre of the Department of Psychiatry, The

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Department of Psychiatry, The University of Hong Kong, Pokfulam, Hong Kong  
KF Chung, MRCPsych, FHKAM (Psychiatry)

Correspondence to: Dr KF Chung

University of Hong Kong. The centre is generally an adult out-patient clinic with fewer than 100 child psychiatric patients. The prescription unit was the milligram equivalent of diazepam used. Dosage conversion from BZs to diazepam was based on the British National Formulary<sup>5</sup> and according to the clinical experience of the author. We also calculated the number of patients who had visited the clinic in each year. Patients who were seen repeatedly were counted once only. Approximately 3600 to 4800 patients visited the clinic in each year during the study period. The prescription of each BZ and total BZ prescriptions per patient were studied.

### Data analysis

The BZ prescription figures in the present study are based on the general Hong Kong and psychiatric clinic populations; no data for each individual was available. Therefore, no statistical analysis was computed to compare the prescription figures between different years or types of BZ. Only changes in volume of BZ prescription over the four-year study period are presented.

## Results

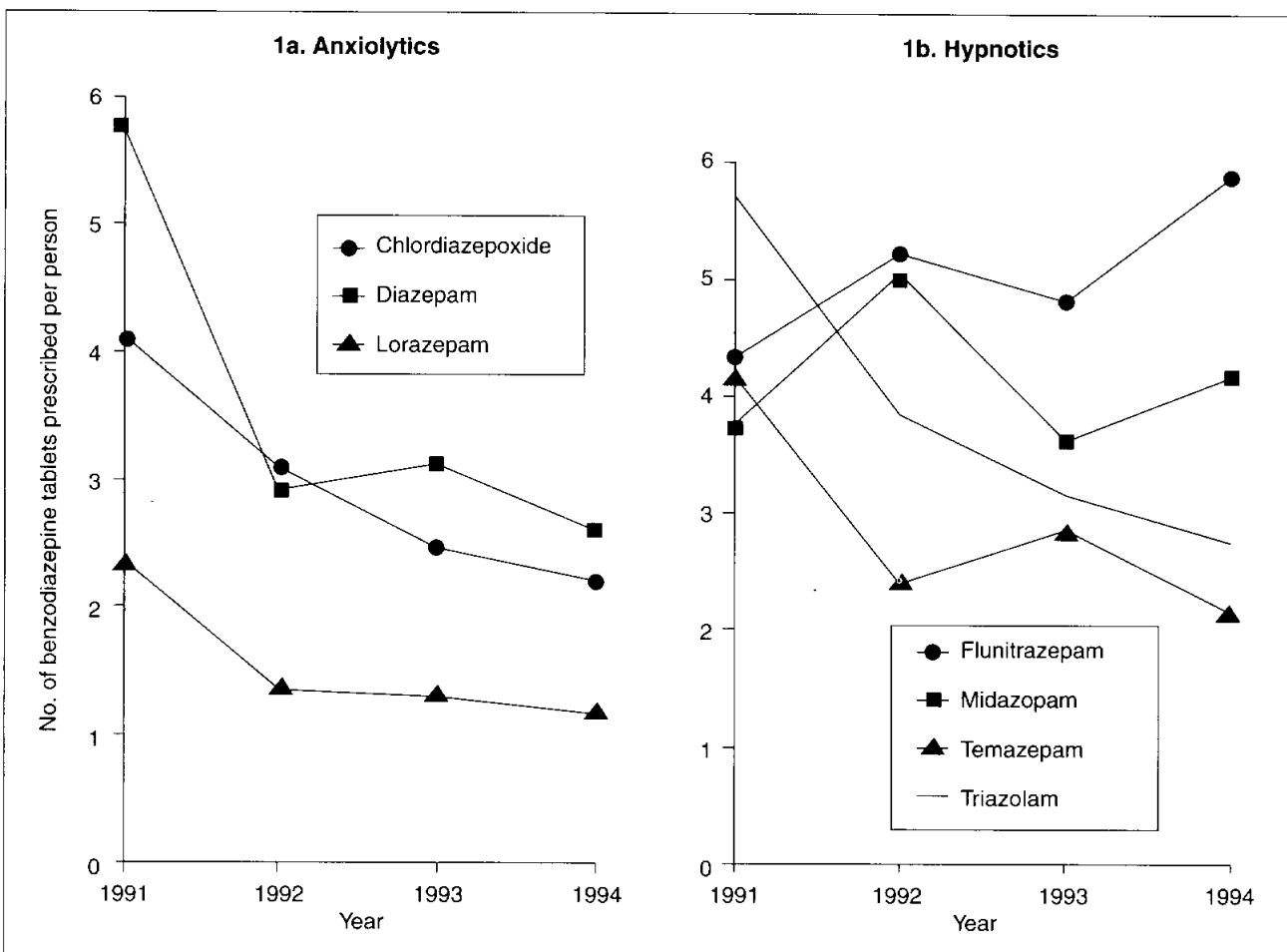
The prescription figures for BZs were calculated separately for anxiolytics and hypnotics according to the usual clinical indication for each BZ.

### Hong Kong population

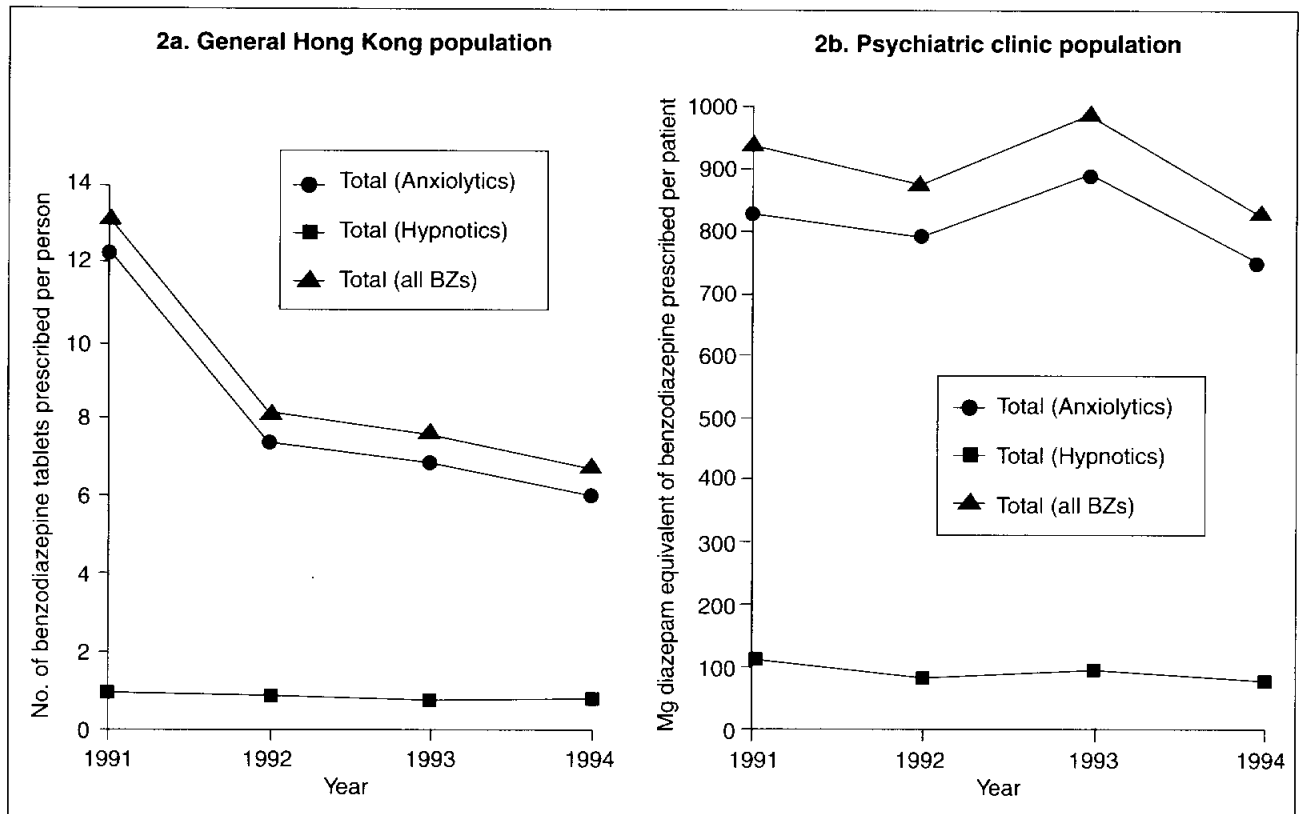
Prescription of most of the BZs per person fell from 1991 to 1994 with the exception of flunitrazepam and midazolam (Figs 1a and b). The amount of reduction was greatest with diazepam and triazolam (more than 50%). There was a shift from the use of triazolam and temazepam to flunitrazepam and midazolam (Fig 1b). This reduction was most significant in 1992 (Fig 2a). A comparison of the figures for 1991 with those for 1994, reveals a 50% and 20% reduction in the prescription of anxiolytics and hypnotics, respectively (Fig 2a).

### Psychiatric out-patient clinic

The prescription of most of the BZs during the study period was either reduced or unchanged except for diazepam, lormetazepam, and nitrazepam, which



**Figs 1a and b.** Yearly prescription of benzodiazepines (a. anxiolytics, b. hypnotics) per person aged 15 years and older in the general Hong Kong population from 1991 to 1994



**Figs 2a and b. Yearly prescription of benzodiazepines in the general Hong Kong population (a) and in a psychiatric clinic population (b) from 1991 to 1994**

showed a small increase in use (Figs 3a and b). The reduction in BZ prescription was greatest in 1992, especially for triazolam. A comparison of the 1991 and 1994 figures, reveals a 10% and 30% reduction in the prescription of anxiolytics and hypnotics, respectively (Fig 2b). Over the four-year period, the total BZ prescription was reduced by 10%, much less than the reduction found in the general population (50%) [Figs 2a and b].

## Discussion

The Hong Kong Government took the first step to curb BZ prescription in October, 1990, by re-classifying three BZs as dangerous drugs (brotizolam, flunitrazepam, triazolam). The impact of this measure has been previously reported<sup>6</sup> and the study showed that prescription of two of the controlled BZs, flunitrazepam and triazolam, was reduced in 1991 compared with 1990. Tightened legislative provisions are an effective means of controlling the prescription of BZs. The introduction of a triplicate prescription requirement in New York resulted in a 50% reduction in BZ prescriptions in the first nine months.<sup>7</sup> The provision requires physicians to prescribe BZs in a triplicate form. The physicians keep one copy, the pharma-

cists keep the second copy, and send the third copy to the regulating agency. A similar impact was observed in the two scenarios under study during the period from 1992 to 1994 when compared with the baseline in 1991.

The BZ prescription in relation to the general Hong Kong population covers both therapeutic use and possible abuse cases. The effect of the new legislative provision on each of the two types of use could not be separately analysed. We found, however, that the reduction in BZ prescription in the psychiatric clinic, which represented mainly therapeutic use, was much smaller than that seen in the general Hong Kong population. One possible interpretation is that tightened legislative control has also resulted in a reduction in abuse.

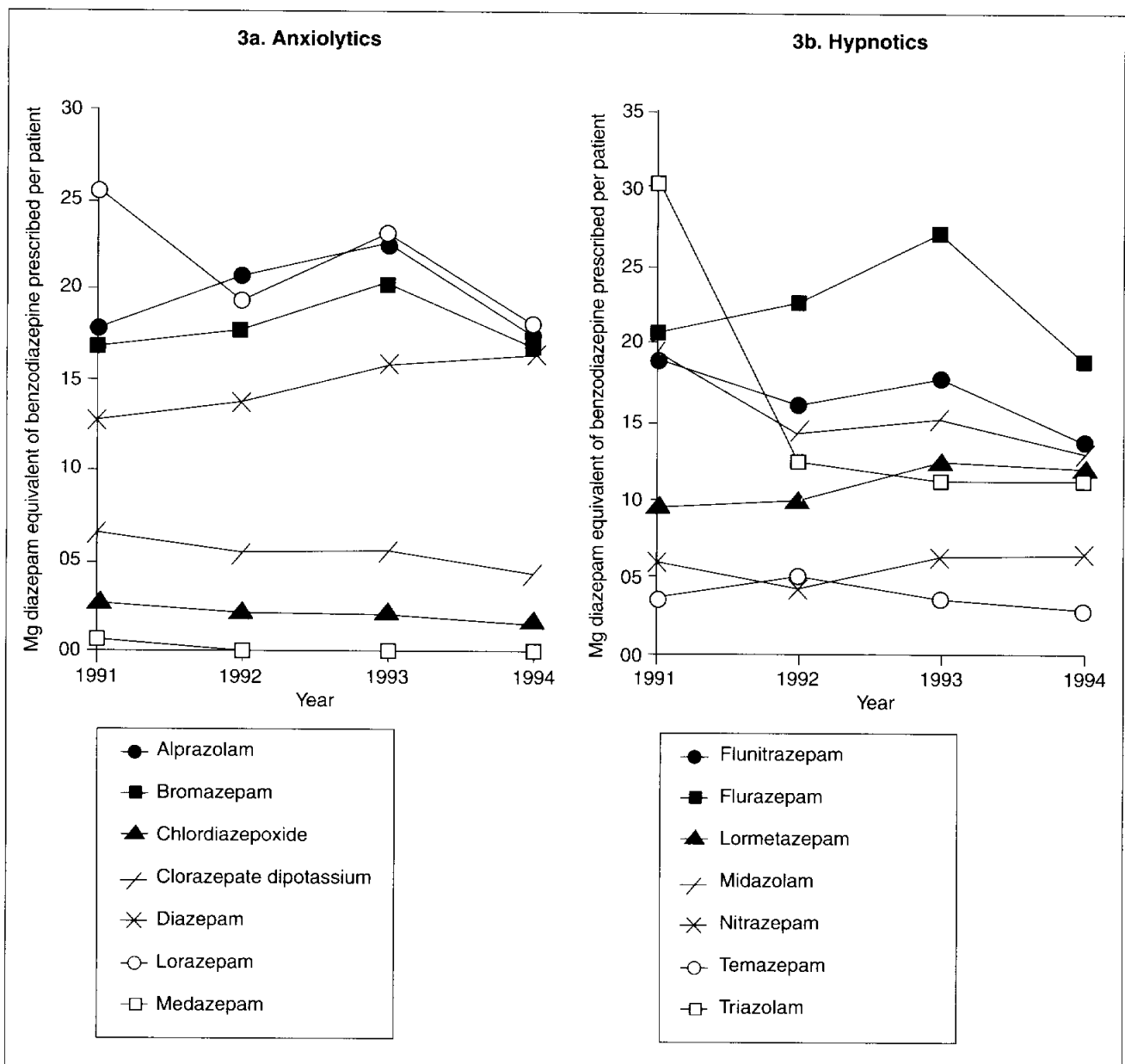
The impact of the provision on the general Hong Kong population was greatest during the first year of its introduction and after 1992, BZ prescriptions remained stable and only decreased slightly. This implies that there is a constant demand for BZ and some of the demand might come from patients who have taken BZs for a long time and are dependent on it. Studies conducted in the United States<sup>8</sup> and Britain<sup>9</sup> show that long term regular BZ users are common in the general population. The percentage of regular BZ

users in the studies were 8.3% and 7.7%, respectively. Of those who had used BZ in the past year, 25% to 30% took it regularly for one year or more.<sup>8,9</sup>

The reduction in triazolam prescriptions was comparatively more drastic. This might be related to its poor public image owing to more serious reported side effects.<sup>10</sup>

The prescription of hypnotics in the general population was relatively constant after the new legislative provision but the use of anxiolytics showed a gradual reduction. This finding was also observed in Britain<sup>11</sup>

where the number of BZ prescriptions per year peaked in 1979 at 31 million and gradually decreased to 16 million in 1990; prescriptions of hypnotics remained fairly stable at 10 to 12 million. In our study, medical practitioners only shifted from one type of hypnotics to another. Similar findings were observed in an earlier study in Hong Kong when two BZ-type hypnotics, flunitrazepam and triazolam, were classified as dangerous drugs in October, 1990. Similarly, in Spain, when the license of a 0.25 mg tablet of triazolam was suspended, medical practitioners shifted the use of the controlled BZs to other hypnotics.<sup>6,12</sup> The treatment of insomnia by medical practitioners seems to rely largely



**Figs 3a and b. Yearly prescription of benzodiazepines (a. anxiolytics, b. hypnotics) per patient in a psychiatric clinic from 1991 to 1994**

on BZ-type hypnotics rather than other psychotropic medications and psychological treatment. Furthermore, insomnia is such a persistent complaint from patients that their prescription cannot be denied.<sup>13</sup> On the other hand, anxiety, other neurotic and minor somatic symptoms are likely more able to be tolerated by patients and hence, the prescription of sedatives was reduced.

In the psychiatric clinic, the prescription of BZs was also reduced but to a lesser extent than the decline in the general population. This might suggest that a larger proportion of clinic attendees when compared with the general population were dependent on BZ and it was difficult to either reduce their dosage of BZ or to change it to another psychotropic medication. The reason for the greater reduction in the prescription of hypnotics over anxiolytics is not clear. One possible explanation is that there has been an increase in the use of non-BZ hypnotics such as zopiclone.

The present study has a number of limitations. Firstly, the conclusions have been drawn from the overall consumption figures and no direct causal relationship between the new provision and the abuse of BZs has been proved. Secondly, the BZ prescribing figures for the general Hong Kong population are not stratified according to different age groups and the prescribing trend in young people (whom the legislative provision was aimed at) is not known. Thirdly, for the general Hong Kong population study, we had to assume that all the tablets used had equal strength. It would be better if BZ prescription was calculated as a standardised unit such as Defined Daily Doses (DDD) per 1000 inhabitants/day.<sup>12</sup> Fourthly, we had hypothesised a number of changes in BZ prescription practice after the legislative provision but we could not show definitive evidence due to limitations of the present study. Lastly, the present study did not cover the BZ prescription figures for clinics run by general practitioners or physicians and the prescription patterns of non-BZ types of anxiolytics and hypnotics were not studied.

It appears that the new legislative provision, which was introduced in 1992, has had a direct effect on the use of BZs. The author hopes that such a reduction is a result of the more cautious use of BZs rather than a denial of BZ to those who could benefit from it. The

presence of a large number of long term BZ users in the general population warrants serious attention.

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