Trends in Benzodiazepine and Z-drug Prescribing and Long-term Use in Hong Kong: A Descriptive Cross-Sectional Study

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INTRODUCTION

- Rising concerns about the long-term use of **benzodiazepines (BZDs) and Z-drugs** [1,2] regarding developing drug dependency and tolerance, increased risk of falls and fractures, and withdrawal symptoms
- BZDs and Z-drugs are recommended for 'short-term' or less than 4 weeks with the lowest dose possible in most guidelines.
- However, extended prescriptions of BZD and Z-drug are common in real clinical settings.

➡ **Strict monitoring** of their prescribing is recommended.

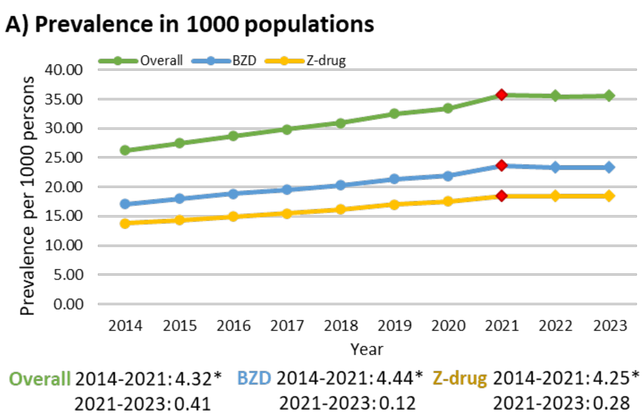
OBJECTIVES

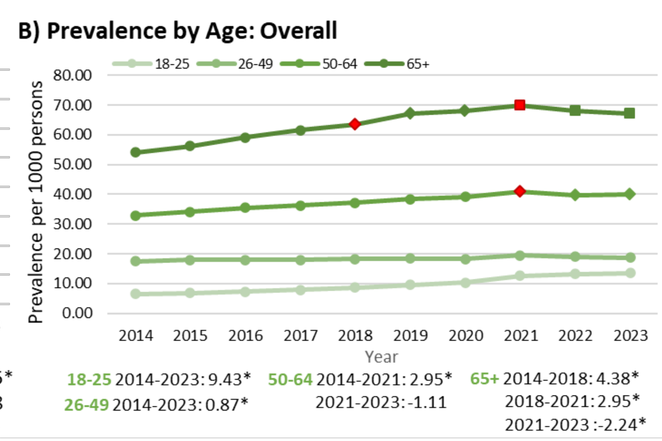
To examine the overall trend of BZD and Z-drug prescribing among adults (18+) in 2014- 2023 in terms of 1) annual **prevalence**, 2) annual **incidence**, and 3) long-term prescribing

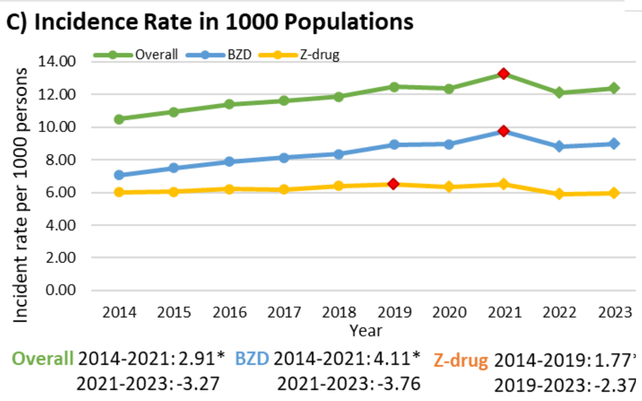
METHOD

- Data source: The **Clinical Data Analysis and Report System (CDARS)** in Hong Kong for prescription records, **Hong Kong Census** for population
- Study population: General population aged 18 and above who received **at least one prescription of BZD or Z-drug**
- Study period: 2014-2023
- Long-term: Prescribing ≥ 30 days (31-90, 91-180, 181-365, and 365+ days)
- Incident prescription: new prescription without previous records in the past 12 months
- Statistical analysis: **Joinpoint regression analysis** to
  1) estimate annual percent change (APC) and average annual percent change (AAPC)
  2) identify significant trend change point (joinpoint)
- Subgroup analysis by age at the prescription start date: 18-25, 26-49, 50-64, and 65+

RESULTS







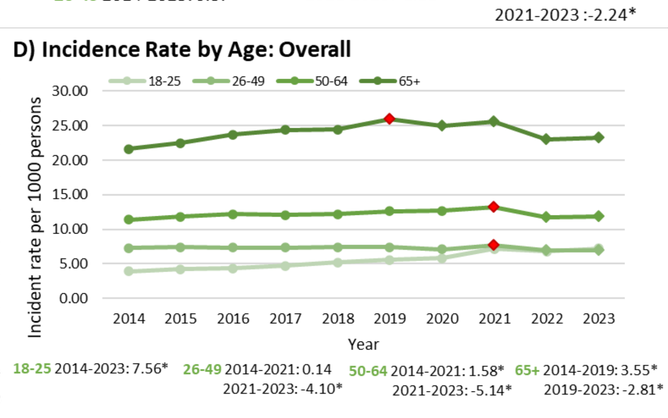


Figure 1. A) Annual **prevalence**; B) **Overall prevalence by age groups**; C) Annual **incident rate**; D) Overall **incident rate by age groups** with APC (annual percent change).
*Note: Red point=joinpoint. * indicates that APC is significantly different from zero at the alpha=0.05 level.*

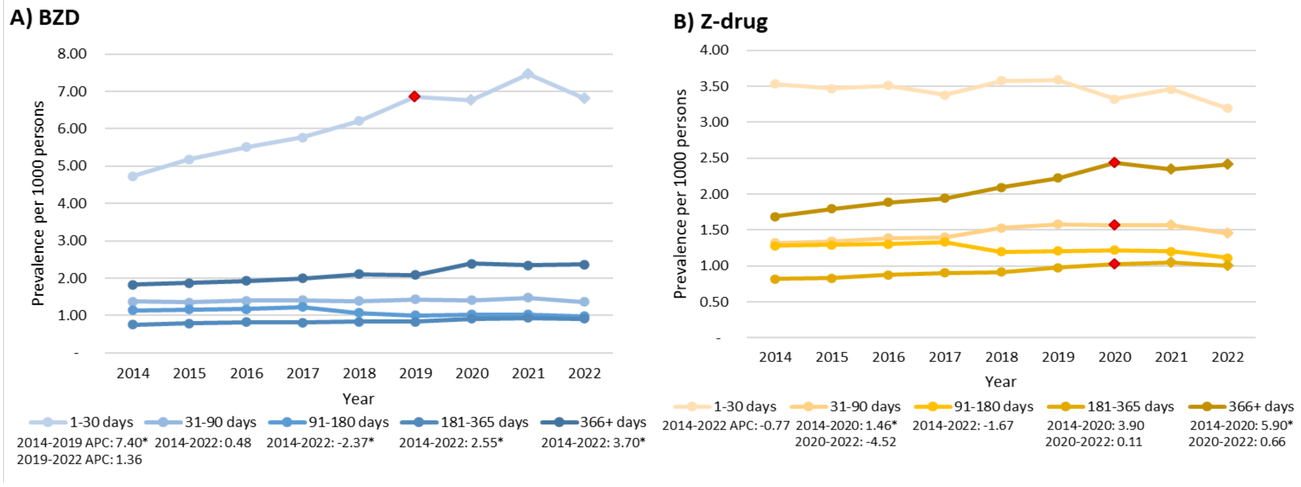


Figure 2. Annual prevalence of patients with A) BZD; B) Z-drug prescription **by the duration of prescription periods** with APC.

Table 1. Cohort characteristics

		Overall	BZD	Z-drug
No. of Prescriptions (%)		12,145,825	7,626,973 (62.80)	4,518,852 (37.20)
No. of Patients (%)		724,965	518,381 (71.50)	389,296 (53.70)
[Demographics]				
Age	Median	60	59	62
	Q1, Q3	46, 74	45, 72	48, 76
Sex	Male (%)	311,812 (43.01)	230,258 (44.43)	153,255(39.37)
	Female (%)	413,153 (56.99)	288,060 (55.57)	236,041 (60.63)
[Baseline Comorbidities]		No. of Patients (%)	No. of Patients (%)	No. of Patients (%)
Psychiatric Disorder	Anxiety	36,542 (5.04)	32,729 (6.31)	19,627 (5.04)
	Bipolar	9,316 (1.29)	8,488 (1.64)	5,972 (1.53)
	Dementia	33,731 (4.65)	23,739 (4.58)	23,288 (5.98)
	Depression	120,704 (16.65)	99,624 (19.22)	80,737 (20.74)
	Eating disorder	864 (0.12)	728 (0.14)	485 (0.12)
	ID	9,773 (1.35)	9,194 (1.77)	3,152 (0.81)
	OCD	3,345 (0.46)	3,001 (0.58)	1,626 (0.42)
	Other psychosis	28,618 (3.95)	25,526 (4.92)	17,022 (4.37)
	Personality disorder	6,838 (0.94)	6,101 (1.18)	4,254 (1.09)
	Schizophrenia	32,102 (4.43)	28,020 (5.41)	18,628 (4.79)
	Sleep disturbance	9,505 (1.31)	7,654 (1.48)	6,884 (1.77)
	SUD	27,458 (3.79)	23,762 (4.58)	14,782 (3.80)
Cancer	Lymphoma	4,933 (0.68)	3,025 (0.58)	3,404 (0.87)
	Metastatic	32,832 (4.53)	23,835 (4.53)	23,835 (6.12)
	Non-metastatic	60,994 (8.41)	37,818 (7.30)	42,628 (10.95)

- Prevalence **increased** (Figure 1) with AAPC for **Overall** =3.44 [95% CI:3.26, 3.61]; *P*<0.001, **BZDs**=3.47 [3.23, 3.69]; *P*<0.001, **Z-drugs**=3.35 [3.14, 3.53]; *P*<0.001
- Incident rate **increased for overall and BZDs**, but **decreased for Z-drugs** (Figure 1) with AAPC for **Overall**=1.51 [0.64, 2.35]; *P*<0.001, **BZD**s=2.31 [1.49, 3.13]; *P*<0.001, **Z-drugs**=-0.09 [-0.60, 0.44]; *P*=0.73
- **Long-term** prescriptions for **BZDs: 46.70%**; for **Z-drugs: 63.16%** from 2014-2023
  - ➢ **Z-drug** prescribing for **181-365 days**: AAPC=2.94 [2.17, 3.88]; *P*<0.001, for **over 365 days**: AAPC=4.57 [3.95, 5.26]; *P*<0.001 (Figure 2)

CONCLUSIONS

- BZD and Z-drug prescribing is **prevalent**, particularly among the **elderly**, with a **noticeable increase** among **young adults**. ➡ While prior research focused on elderly patients for the safe use of BZDs and Z-drugs, greater attention is needed to the younger population.
- The prevalence of BZD prescription is still increasing in Hong Kong which is inconsistent with other countries [3-5] ➡ Possibly due to the established prescribing habits favoring BZDs among health professionals
- Long-term prescribing of BZD and Z-drug, particularly for **periods exceeding 180 days**, is **on the rise**, with this trend being more pronounced for **Z-drug** than BZD.

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All authors confirmed that there is no conflict of interest.

CONTACT INFORMATION

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