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SHORT REPORT

Prescription medication use by emergency department doctors to improve work and academic performance, and to manage stress and anxiety

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Abstract

Objective: To determine medications used by ED doctors to improve work and academic performance, and to manage stress and anxiety.
Methods: We undertook an online, voluntary, anonymous survey of ACEM fellows and trainees.
Results: One hundred and thirty-nine (46.5%) respondents used a medication under examination. Sleep aids included melatonin (19.1% of respondents) and benzodiazepines (8.7%). Medications to improve performance included modafinil (4.7%), pseudoephedrine (2.0%), melatonin (2.0%) and beta blockers (1.3%). Some medications were taken prior to shifts. Medications to manage stress and anxiety included benzodiazepines (3.0%) and beta blockers (2.0%).
Conclusion: Medication use is common and support for some doctors may be required.

Key words: *emergency department, medication, performance, physician.*

Introduction

There is increasing anecdotal and research evidence that up to 56% of physicians take medications to aid their work and academic performance.[1,2] Examples include stimulants for wakefulness, sedatives for stress and other medications for anxiety.

Overseas studies of drug and medication use by emergency medicine trainees have indicated that the use of prescription medications to manage professional stressors is common.[1,2] As similar research has not been performed in Australasia, the extent and nature of such medication use in this setting is unknown.

We aimed to survey Australasian College for Emergency Medicine (ACEM) fellows and trainees to determine the prevalence and nature of prescription medication use to improve work and academic performance, and to manage stress and anxiety.

Methods

We undertook a voluntary, anonymous, cross-sectional survey of ACEM fellows and trainees. The study was approved by the Austin Health Human Research Ethics Committee and the ACEM Scientific Committee. Informed consent was implied if a participant completed the study questionnaire.

A link to the survey details and questionnaire was included in ACEM Bulletins (October–November, 2019). The survey was also advertised via email to the investigators' contacts and at local administration and education meetings. All fellows and trainees were eligible for participation. There were no exclusion criteria.

A literature search identified medications that ED doctors take to aid their performance. These were supplemented with those where anecdotal evidence indicated their use (Appendix S1). Respondents were asked if they had taken any of these medications in the previous 12 months and, if they had, for what purpose and whether it was taken within 4 h of shift commencement. The questionnaire was designed for the study and trialled for face validity by three fellows and four trainees. Data were collected with REDCap software.[3] The primary outcome was the proportion of fellows and trainees who used medications to improve work and academic performance, and to manage stress and anxiety. The secondary outcome was the nature of the medications used.

The study had 89% power to detect a clinically significant difference of 20% in medication use between the doctor sub-groups. Fisher's exact test was employed to compare the sub-groups (alpha = 0.05).

Results

Overall, 299 doctors responded: 138 (46.2%) male, 209 (69.9%) fellows, 168 (56.3%) aged <45 years.

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TABLE 1. *Medications taken by the respondents within the last 12 months*

Medications taken	Total, *n*	Fellows (*n* = 209)	Trainees (*n* = 90)	*P*	Medication taken 4 h before a shift, *n*
Took one or more of the medications under investigation	139	84 (40.2%)	55 (61.1%)	0.001	
Melatonin (≥2 mg)	69	35 (16.7%)	34 (37.8%)	<0.001	5
Benzodiazepines (oral)	32	16 (7.7%)	16 (17.8%)	0.01	3
Pseudoephedrine	30	19 (9.1%)	11 (12.2%)	0.41	21
Opioids (oral)	30	19 (9.1%)	11 (12.2%)	0.41	5
Zopiclone	19	8 (3.8%)	11 (12.2%)	0.01	0
Modafinil	13	5 (2.4%)	8 (8.9%)	0.02	12
Beta blockers	12	8 (3.8%)	4 (4.4%)	0.76	6
Zolpidem	9	5 (2.4%)	4 (4.4%)	0.46	1
Opioids (injectable)	4	2 (1.0%)	2 (2.2%)	0.59	0
Lisdexamfetamine	2	2 (1.0%)	0 (0%)	0.99	0
Dexamfetamine	2	0 (0%)	2 (2.2%)	0.09	0
Armodafinil	0	0	0	–	0
Methylphenidate	0	0	0	–	0
Benzodiazepines (injectable)	0	0	0	–	0

One hundred and thirty-nine (46.5%) respondents used one or more of the medications, with a significantly greater proportion among trainees (Table 1). Melatonin and benzodiazepine use were most common (used by 23.1% and 10.7% of respondents, respectively). Significantly greater proportions of trainees used these medications as well as zopiclone, another sedative. Thirty (10.0%) of 299 respondents used oral opioids and four used injectable opioids. Thirteen (4.3%) of 299 used modafinil, with a significantly greater proportion among trainees.

Pseudoephedrine use was the most common medication taken within 4 h of a shift (7.0% of respondents). Other medications taken within this period were modafinil, beta blockers, oral opioids, melatonin and benzodiazepines. The frequency of use ranged from 'some' to 'all' shifts.

Melatonin was mostly taken to aid sleep (21.1% of respondents) but also to improve work and academic function (2.0%) (Table 2). Oral benzodiazepines were mostly to aid sleep, although nine respondents used them to relieve stress and anxiety. Pseudoephedrine was mostly used to manage a medical condition but also to improve work and academic function. Opioids were almost always used for a medical condition although one respondent used them to relieve stress. Modafinil was largely taken to improve work and academic performance and to stay alert.

Discussion

One hundred and thirty-nine (46.5%) respondents reported the use of one or more of the medications. Sleep aid use was most common, especially among trainees who work night shifts. Cognitive performance declines among fatigued emergency physicians[4] and sleep aid use is understandable.[4] Pseudoephedrine use, including prior to a shift, was common. However, this was mostly for medical conditions.

The use of medications for stress and anxiety is notable. There is evidence that ED doctors are among the most stressed.[5] A broader ACEM investigation of stress/anxiety among fellows and trainees is recommended as support for those at risk may be required.

Opioid use was almost always for medical conditions. The study was not designed to determine if this use was in association with a procedure or an intercurrent painful condition. It is of concern, however, that oral opioids were taken prior to a shift by five respondents and used to relieve stress by another.

The present study was limited by a small sample size and the likelihood of substantial selection, recall and prevarication bias. Notwithstanding these limitations, it provides evidence that the use of medications to improve work and academic function, and to manage stress and anxiety, is common.

Author contributions

All authors conceived the study and prepared the study protocol. KME and DMT obtained ethics and

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TABLE 2. *Purpose of prescription medication use*

	Total	To function better at work	To function better with academic work	To stay alert	To aid sleep	To relieve stress	To relieve anxiety	Management of medical condition	Other
Melatonin (≥2 mg)	69	3 (4.3%)	3 (4.3%)	0 (0.0%)	57 (82.6%)	0 (0.0%)	1 (1.4%)	2 (2.9%)	16 (23.2%)
Benzodiazepines (oral)	32	0 (0.0%)	1 (3.1%)	0 (0.0%)	26 (81.3%)	4 (12.5%)	5 (15.6%)	1 (3.1%)	2 (6.3%)
Pseudoephedrine	30	4 (13.3%)	2 (6.7%)	2 (6.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	24 (80.0%)	4 (13.3%)
Opioids (oral)	30	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.3%)	0 (0.0%)	27 (90.0%)	2 (6.7%)
Zopiclone	19	1 (5.3%)	0 (0.0%)	0 (0.0%)	17 (89.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (21.1%)
Modafinil	13	6 (46.2%)	8 (61.5%)	9 (69.2%)	2 (15.4%)	0 (0.0%)	0 (0.0%)	2 (15.4%)	0 (0.0%)
Beta blockers	12	0 (0.0%)	4 (33.3%)	0 (0.0%)	0 (0.0%)	1 (8.3%)	5 (41.7%)	6 (50.0%)	1 (8.3%)
Zolpidem	9	1 (11.1%)	0 (0.0%)	0 (0.0%)	7 (77.8%)	1 (11.1%)	1 (11.1%)	0 (0.0%)	2 (22.2%)
Opioids (injectable)	4	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (50.0%)	2 (50.0%)
Lisdexamfetamine	2	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)
Dexamfetamine	2	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100%)	0 (0.0%)

governance approval. KME arranged for the study details and questionnaire to be distributed by ACEM. KME, DMT, SET analysed the data. All authors contributed to writing the manuscript and approved the final, submitted manuscript.

Competing interests

None declared.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request

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Supporting information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Appendix S1. Survey used in the study

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