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Letter to the Editor Sleep problems and medical isolation during the SARS-CoV-2 outbreak



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To the Editor,

Since the outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Wuhan, a cumulative number of 80,754 confirmed cases were reported in China until March 9, 2020 [1]. To prevent and control the spread of the pandemic, effective measures of medical isolation and self-isolation were widely adopted. However, isolation may cause negative psychological effects [2], which in turn may impair sleep quality [3]. This study investigated the sleep status among the population in isolation.

Demographic data, isolation status, and sleep status were collected via a nationwide online self-report questionnaire survey conducted in February 2020 in China, which collected 14,505 valid questionnaires. Medically isolated population was defined as people who were infected, suspected to be infected, had been exposed to infected or those suspected to be infected, or individuals who visited areas of high epidemic severity during the outbreak. Self-reported isolation population referred to people who reported self-isolation but did not meet the four conditions of medical isolation. A total of 76.7% of the medically isolated population reported difficulty falling asleep at least once over the week preceding the survey, while the corresponding rates among self-reported isolation (51.0%) and non-reported isolation groups (42.3%) were significantly lower. Likewise, the rate of early wake-up at least once over the week preceding the survey (79.5%) was highest among the medically isolated group (Fig. 1). Among the medically isolated population, front-line anti-epidemic workers were more likely to have difficulty falling asleep (odds ratio, OR: 1.81) and reported early wake-up (OR: 3.13) compared with the control group. The prevalence of sleep problems was high during the first two weeks of medical isolation and decreased thereafter (Figs. 2 and 3). In conclusion, sleep problems were found to be prominent among the medically-isolated population, which may be due to fear of infection, suggesting that medically isolated individuals require appropriate psychological intervention.

V ariab les	Prevalence%& (95%Cl)		Unad justed o	dds ratio& (95%Cl)
Difficulty to fallasleep		1		
non-reported isolation $(N=10786)$	42.3 (41.4-43.3)	1		1 (re f)
self-reported isolation $(N = 3012)$	51.0 (49.2-52.8)	•		1.42(1.31-1.54)
m edically isolation $(N = 707)$	76.7(73.4-79.6)		⊢	4.47 (3.74-5.35)
Early wake-up		↓		
non-reported isolation (N=10786)	49.0 (48.1-50.0)			1 (ref)
self-reported isolation (N=3012)	56.0 (54.2-57.7)	Hel		1.32(1.22-1.44)
m edically isolation $(N = 707)$	79.5 (76.4-82.3)		0 1	4.03 (3.35-4.86)
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		C)R	

Fig. 1. Prevalence of self-reported sleep problems at least once during the week preceding the survey among individuals in different states of isolation.



Variables	N	Prevalence(95%CI)	Unadjusted oc ratio(95%
Gender			
Female	314	75.8 (70.8-80.2)	1 (re
Male	393	77.4 (73-81.2)	1.09 (0.77-1.55
Age (year)			
18-30	363	74.7 (69.9-78.9)	1 (re
31-44	300	79.3 (74.4-83.5)	1.3 (0.9-1.88
45-	44	75 (60.6-85.4)	1.02 (0.5-2.1
Education Middle school and			Ĭ
below	50	78 (64.8-87.2)	1 (re
High school	91	90.1 (82.3-94.7)	₽ 2.57 (0.98-6.71
College and above	566	74.4 (70.6-77.8)	0.82 (0.41-1.64
Occupation			
Other populations first-line anti-epidemic	505	77.2 (73.4-80.7)	1 (re
workers	107	86 (78.2-91.3)	1.81 (1.01-3.24
Students Isolation of time(week(s))	95	63.2 (53.1-72.2)	i ★ i 0.51 (0.32-0.81
≤1	78	74.4 (63.7-82.7)	1 (re
(1-2)	376	84.8 (80.9-88.1)	1.93 (1.08-3.45
≥2	253	65.2 (59.2-70.8)	0.65 (0.37-1.14

Fig. 2. Prevalence and distribution of difficulty to fall asleep at least once during the week preceding the survey among individuals in medical isolation.

Variables		Prevalence(95%CI)	Unadjusted odds ratio(95%Cl)
Gender			
Female	314	79.3 (74.5-83.4)	1 (ref)
Male	393	79.6 (75.4-83.3)	1.02 (0.71-1.47)
Age (year)			
18-30	363	78.2 (73.7-82.2)	1 (ref)
31-44	300	81.7 (76.9-85.6)	1.24 (0.84-1.82)
45-	44	75 (60.6-85.4)	0.84 (0.4-1.73)
Education Middle school and			
below	50	82 (69.2-90.2)	1 (ref)
High school	91	90.1 (82.3-94.7)	2 (0.74-5.42)
College and above	566	77.6 (73.9-80.8)	0.76 (0.36-1.6)
Occupation			
Other populations first-line anti-epidemic	505	79.8 (76.1-83.1)	1 (ref)
workers	107	92.5 (85.9-96.2)	× 3.13 (1.48-6.65)
Students Isolation of time(week(s))	95	63.2 (53.1-72.2)	0.43 (0.27-0.69)
≤1	78	83.3 (73.5-90)	1 (ref)
(1-2)	376	87 (83.2-90)	1.34 (0.69-2.6)
≥2	253	67.2 (61.2-72.7)	I 0.41 (0.21-0.79)

Fig. 3. Prevalence and distribution of early wake-up at least once during the week preceding the survey among individuals in medical isolation.

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Conflict of interest

The authors declare no conflicts of interest.

The ICMJE Uniform Disclosure Form for Potential Conflicts of Interest associated with this article can be viewed by clicking on the following link: https://doi.org/10.1016/j.sleep.2020.04.014.

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