

# The association between Insomnia Disorder and Depression in the General Population of Qatar: the Role of Inflammatory Disease



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## Background

- Insomnia disorder is a predominant complaint of dissatisfaction with sleep quantity or quality.
- Sleep disturbance is associated with increased inflammation (Irwin, Olmstead & Carrol 2016).
- Sleep disorder and inflammation lead to depression (Irwin & Piber, 2018).
- Depression is projected to become a major contributor to global burden of disease by 2030.

## Aims

- To estimate the associations between insomnia, inflammatory illness, and depression in the sample of Qatar's population.
- To understand the importance of inflammation in the pathophysiology of depression.
- To understand the relationship between insomnia and depression.

## Methods

### Data Collection

We used probability-based sampling on a representative sample, (N = 1,611) of Qatar's residents.

Face-to-face interviews were conducted using computer-assisted technology as part of SESRI's Annual Omnibus Survey in 2019.

### Measures

The Sleep Condition Indicator was used to assess insomnia symptoms, Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-2) for subthreshold depression (SUBD) and Major depressive disorder (MDD), and a self-reported assessment of chronic conditions for inflammation.



- Have you ever been diagnosed with or told you have any of the following conditions:
- |                             |  |
|-----------------------------|--|
| 1) Diabetes                 | 7) Multiple sclerosis                              |
| 2) Asthma                   | 8) Thyroid diseases (e.g. hyper or hypothyroidism) |
| 3) Rheumatoid Arthritis     | 9) Allergies (including food or other allergies)   |
| 4) Psoriasis                | 10) Pernicious Anemia                              |
| 5) Systemic lupus           | 11) Other (specify)                                |
| 6) Irritable Bowel Syndrome | 12) No Health Problem                              |
- /Inflammatory Bowel Disease

## Results

Figure 1. Minor and Major Depression Prevalence by Insomnia and Health Status

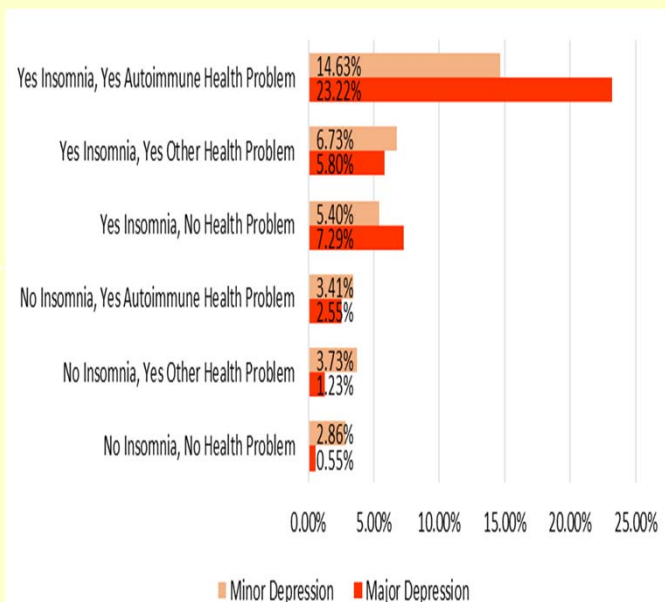


Table 1. Multinomial Logistic Regression Results

Insomnia	Minor Depression			Major Depression		
	OR	95%CI	p-value	OR	95%CI	p-value
Yes (No Insomnia reference)	4.2	1.7,10.3	0.002	20.4	7.15,58.2	<0.001

As shown in Table 1, in a model (adjusted for age, gender, and household type) with depression as a dependent variable, a statistically significant association between SUBD and insomnia was found (OR=4.5, P<0.01), while much stronger association was found between major depression and insomnia (OR=20.3, P<0.001).

## Conclusions

- Our findings highlight a link between autoimmune-based Inflammation, insomnia, and major depressive symptoms needs further examination.
- It is important for physicians to be aware of the potential of inflammation being associated with serious mental illness and sleep disturbances, which may warrant tailored prevention and treatment.

## References

Irwin, M. R., Olmstead, R., Carroll, J. E. (2016). Sleep disturbance, sleep duration, and inflammation: A systematic review and meta-analysis of cohort studies and experimental sleep deprivation. *Biological Psychiatry*, 80(1), 40-52

Irwin, M., & Piber, D. (2018). Insomnia and inflammation: a two hit model of depression risk and prevention. *World Psychiatry*, 17, 359-361