

# Pooled Prevalence of Subjective Poor Sleep Quality in Functional Dyspepsia Patients: A Systematic Review and Meta-analysis

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## BACKGROUND

Functional Dyspepsia (FD), a disease of the gastroduodenal tract, is one of the Functional Gastrointestinal Disorders (FGID) characterized by postprandial fullness and epigastric pain not attributed to any underlying organic diseases. Sleep quality refers to individuals' satisfaction with their overall sleep, including sleep initiation, maintenance, duration, and feeling refreshed upon waking. Despite frequent associations between sleep disorders and FGID, comprehensive data on Poor Sleep Quality (PSQ) in FD patients is lacking. This study was conducted to provide a pooled prevalence of PSQ in FD patients.

## METHODS

We systematically reviewed three databases—PubMed, Web of Science, and Scopus—up to August 25, 2024, to identify relevant literature. All studies reporting PSQ prevalence in FD patients or sufficient data to calculate it were included. Pooled prevalence was calculated for all studies, and an odds ratio was determined for studies with a healthy control group. Observational studies reporting the prevalence of PSQ in FD patients were also included. Data on study characteristics, prevalence rates, and quality assessments were extracted.

## RESULTS

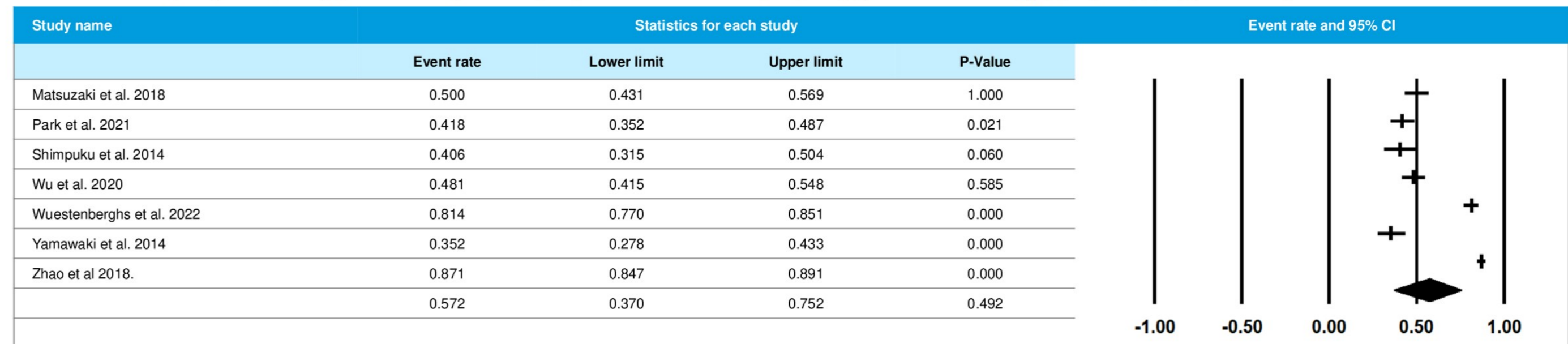
Seven studies encompassing 2,138 FD patients from Japan, China, South Korea, and France were included. The pooled prevalence of PSQ in FD patients was 57.2% (95% CI: 37.0%–75.2%). In studies with healthy controls, FD patients were more than twice as likely to experience PSQ compared to controls (OR = 2.39; 95% CI: 1.86–3.06). Subgroup analyses revealed higher prevalence estimates associated with interview-based data collection, the use of Rome IV criteria for FD diagnosis, and higher cut-off scores on the Pittsburgh Sleep Quality Index (PSQI). Meta-regression indicated that larger sample sizes were significantly correlated with higher reported prevalence ( $p < 0.001$ ).

TABLE 1: SUMMARY OF THE INCLUDED STUDIES

Author and year	Country	Method of data collection	Function Dyspepsia diagnosis	Sleep quality diagnosis	PSQI cut-off	Age (mean ± SD)	Female (%)	Total FD cases (n)	Poor sleep in FD (n)	Total control (n)	Poor sleep in control (n)	Study quality
Matsuzaki et al. 2018	Japan	Interview	Rome III	PSQI	≥ 6	43.9 ± 10.1	46.5	202	101	257	88	8
Park et al. 2021	South Korean republic	Questionnaire	Rome III	PSQI	≥ 8.5	55.4 ± 14.9	74.6	201	84	325	61	5
Shimpuku et al. 2014	Japan	Questionnaire	Rome III	PSQI	> 5.5	N/A	31.7	101	41	50	12	6
Wu et al. 2020	China	Interview	Rome IV	PSQI	≥ 8	67.8 ± 8.4	35.6	214	103	N/A	N/A	6
Wuestenberghs et al. 2022	France	Questionnaire	Rome IV	PSQI	> 5	47 ± 15.7	76.6	355	289	N/A	N/A	6
Yamawaki et al. 2014	Japan	Questionnaire	Rome III	PSQI	> 5.5	N/A	68.9	145	51	44	8	7
Zhao et al 2018.	China	Interview	Rome III	PSQI	> 8	50.9 ± 11.5	62.07	920	801	N/A	N/A	5

Summarization of the characteristics of the included studies.

TABLE 2: THE FOREST PLOT VISUAL REPRESENTATION OF THE PREVALENCE OF PSQ IN FD PATIENTS, USING A 95% CONFIDENCE INTERVAL



## CONCLUSION

To our knowledge, this is the first study that pooled estimate of prevalence of patients with FD with PSQ. Over half of the patients with FD experience poor sleep quality, and they are more than twice as likely to have PSQ compared to healthy individuals. Future research should employ standardized diagnostic criteria and methodologies to better understand and manage sleep challenges in this population.