Abstract #352
Irritable bowel syndrome is a risk factor for erectile dysfunction in Taiwanese men under 65

Yi-wei Su, Wei-ming Cheng
Taipei City Hospital

Hypothesis / aims of study

Erectile dysfunction (ED) is a worldwide disease and had multiple causes. Common known risk factors including increased age, obesity, hypertension, diabetes mellitus, cardiac diseases, hyperlipidemia, smoking, physical activity, psychiatric disease, benign prostate hyperplasia (BPH) and human immunodeficiency virus (HIV) infection. [1-3]

However, ED is increasing among men, even in the absence of known systemic risk factors. This study aimed to investigate the potential link between non-urological conditions — such as temporomandibular disorders (TMD), multiple chemical sensitivity (MCS), tension, migraine headache (TH&MH), localized myofascial pain disorder (LMP), irritable bowel syndrome (IBS), and fibromyalgia (FM), — and ED in young Taiwanese men under the age of 65.

Study design, materials and methods

We recruited participants under 65 via an online questionnaire for our cross-sectional study. The questionnaire gathered data on various ED risk factors, such as age, body mass index (BMI), education level, comorbidities, smoking status, and regular exercise habits. Non-urological conditions were assessed with validated questionnaires. Erectile function was evaluated with the International Index of Erectile Function Score (IIEF-5), with a score < 22 indicating ED. Statistical tests, including Student's t-test and Pearson's chi-square test, compared participants with and without ED. Univariate and multivariate logistic regression analyses identified potential ED risk factors.

Results and interpretation

Out of 3,704 Taiwanese men surveyed, 58.94% had ED. Those with ED were older and more obese and had lower education, fewer regular exercise habits, more comorbidities, and more non-urological conditions such as TH&MH, LMP, IBS, and FM (Table 1). Univariate logistic regression revealed that age ≥ 40 years, obesity, lower education level, hypertension, diabetes mellitus, psychiatric diseases, HIV infection, lack of regular exercise, TH&MH, LMP, IBS, and FM correlated with ED. On multivariate analysis, age ≥ 40 years (OR 1.619, 95%CI 1.382 –1.895, p < 0.001), BMI ≥ 30 kg/m2 (OR 1.538, 95%CI 1.217 – 1.942, p < 0.001), psychiatric diseases (OR 1.542, 95%CI 1.240 – 1.927, p < 0.001), BPH (OR 2.218, 95%CI 1.322 – 3.722, p = 0.003), HIV infection (OR 1.842, 95%CI 1.413 – 2.401, p < 0.001), and lack of regular exercise (OR 1.177, 95%CI 1.026 – 1.351, p = 0.020) remained significantly associated with ED. Moreover, IBS was the only non-urological condition independently associated with ED (OR: 1.473; 95% CI: 1.077 – 2.015, p = 0.015) (Table 2).

Table 1. Demography of non-ED and ED[a] group

Parameters	Non-ED	ED	Total	P-value
Participants (n, %)	1521(58.9)	2183(41.1)	3704(100)	
Age (years, Mean ± SD[b])	34.1±8.1	36.8±8.8	35.7±8.6	<0.001
BMI[c] (kg/m², Mean ± SD)	24.5±3.8	25.2±4.3	24.9±4.1	<0.001
Education level above college (n, %)	1362 (89.5)	1907 (89.5)	3269(88.3)	0.042
Hypertension (n, %)	116 (7.6)	223 (10.2)	339 (9.2)	0.007
Diabetes Mellitus (n, %)	38 (2.5)	108 (4.9)	146 (3.9)	<0.001
Hyperlipidemia (n, %)	68 (4.5)	161 (7.4)	229 (6.2)	<0.001
Psychiatric history (n, %)	137 (9.0)	310 (14.2)	447 (12.1)	<0.001
BPH[d] (n, %)	19 (1.2)	79 (3.6)	98 (2.6)	<0.001
HIV infection (n, %)	85 (5.6)	219 (10.0)	304 (8.2)	<0.001
Cancer history (n, %)	4 (0.3)	12 (0.5)	16 (0.4)	0.191
Smoking without quit (n, %)	247 (16.2)	353 (16.2)	600 (16.2)	0.955
Smoking history (Quit + not quit) (n, %)	310 (20.4)	485 (22.2)	795 (21.5)	0.181
Regular exercise habit (n, %)	893 (58.7)	1165 (53.4)	2058 (55.6)	0.001
Temporomandubular disorders (n, %)	88 (5.8)	141 (6.5)	229 (6.2)	0.403
Multiple chemical sensitivities (n, %)	57 (3.7)	104 (4.8)	161 (4.3)	0.136
Tension and migraine headache (n, %)	332 (21.8)	566 (25.9)	898 (24.2)	0.004
Localized myofascial pain disorder (n, %)	290 (19.1)	546 (25.0)	836 (22.6)	<0.001
Irritable bowel syndrome (n, %)	64 (4.2)	139 (6.4)	203 (5.5)	0.004
Fibromyalgia (n, %)	73 (4.8)	151 (6.9)	224 (6.0)	0.008

Notes: Data are shown as mean ± SD or numbers (percentages), ED[a]=erectile dysfunction, SD[b]= standard deviation, BMI[c]= body mass index, BPH[d]= benign prostate hyperplasia

Table 2. Univariate and multivariate logistic regression analyses model for male erectile dysfunction

Variables	Category	Crude OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
Age	≧ 40	1.720 (1.484-1.993)	<0.001	1.618 (1.382-1.894)	<0.001
	< 40	1		1	
BMI	≧ 30	1.636 (1.311-2.043)	<0.001	1.544 (1.223-1.951)	<0.001
	< 30	1		1	
Education level above college	Yes	0.807 (0.656-0.992)	0.042	0.946 (0.763-1.173)	0.612
	No	1		1	
Hypertension	Yes	1.378 (1.090-1.742)	0.007	0.897 (0.691-1.165)	0.416
	No	1		1	
Diabetes	Yes	2.031 (1.395-2.957)	<0.001	1.396 (0.929-2.097)	0.109
	No	1		1	
Hyperlipidemia	Yes	1.701(1.271-2.277)	<0.001	1.229 (0.894-1.690)	0.204
	No	1		1	
Psychiatric history	Yes	1.672 (1.353-2.068)	<0.001	1.526 (1.225-1.901)	<0.001
	No	1		1	
BPH	Yes	2.968 (1.791-4.919)	<0.001	2.221 (1.324-3.727)	0.003
	No	1		1	
HIV infection	Yes	1.884 (1.453-2.442)	<0.001	1.825 (1.401-2.378)	<0.001
	No	1		1	
Smoking without quit	Yes	1			
	No	0.995 (0.833-1.188)	0.955		
Smoking history (Quit + not quit)	Yes	1			
	No	1.116 (0.950-1.310)	0.181		
Regular exercise	Yes	0.805 (0.705-0.919)	0.001	0.857 (0.747-0.983)	0.027
	No	1		1	
Temporomandubular disorders	Yes	1.124 (0.854-1.480)	0.403		
	No	1			
Multiple chemical sensitivities	Yes	1.285 (0.924-1.787)	0.136		
	No	1			
Tension and migraine headache	Yes	1.254 (1.074-1.463)	0.004	1.134 (0.963-1.334)	0.131
	No	1		1	
Localized myofascial pain disorder	Yes	1.416 (1.206-1.662)	<0.001	1.177 (0.99-1.399)	0.065
	No	1		1	
Irritable bowel syndrome	Yes	1.548 (1.143-2.097)	0.005	1.480 (1.082-2.024)	0.014
	No	1		1	
Fibromyalgia	Yes	1.474 (1.106-1.965)	0.008	1.106 (0.814-1.503)	0.520
	No	1		1	

A systematic review and meta-analysis conducted in 2022 showed a higher prevalence of erectile dysfunction (ED) among patients with IBD. [4] Our study found similar results, indicating that IBD emerged as an independent risk factor for ED after adjusting for other confounding variables such as age, BMI, psychiatric disorders, BPH, HIV infection, and lack of regular exercise. These results suggest a correlation between lower abdominal diseases and ED.

Additionally, previous studies have demonstrated that IBD affects both organic and psychogenic erectile dysfunction. [5] However, there is no clear pathophysiological explanation for the relationship between these two conditions.

Our limitations include the retrospective study design and the use of online self-reported questionnaires. Further research investigating the correlation between IBD and ED is crucial.

Conclusions

In Taiwanese men aged under 65, besides older age, obesity, psychiatric conditions, BPH, HIV infection, and lack of regular exercise, IBS is an independent predictor of ED. Further study is needed to clarify the pathophysiology between ED and IBS.

References

1. Selvin, E., Burnett, A. L., & Platz, E. A. (2007). Prevalence and risk factors for erectile dysfunction in the US. The American journal of medicine, 120(2), 151-157.

2. Bacon, C. G., Mittleman, M. A., Kawachi, I., Giovannucci, E., Glasser, D. B., & Rimm, E. B. (2006). A prospective study of risk factors for erectile dysfunction. The Journal of urology, 176(1), 217-221.

3. Li, J. Z., Maguire, T. A., Zou, K. H., Lee, L. J., Donde, S. S., & Taylor, D. G. (2022). Prevalence, comorbidities, and risk factors of erectile dysfunction: Results from a prospective real-world study in the United Kingdom. International journal of clinical practice, 2022(1), 5229702.

4. Wu, X., Zhang, Y., Zhang, W., Liu, G., Huang, H., Jiang, H., & Zhang, X. (2022). The prevalence and associated risk factors of erectile dysfunction in patients with inflammatory bowel disease: a systematic review and meta-analysis. The journal of sexual medicine, 19(6), 950-960.

5. Hsu, C. Y., Lin, C. L., & Kao, C. H. (2015). Irritable bowel syndrome is associated not only with organic but also psychogenic erectile dysfunction. International Journal of Impotence Research, 27(6), 233-238.