Investigation of the Economic Burden of Constipation in Patients with Chronic Musculoskeletal Pain

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Key Findings

- This study was the first to show that constipation and opioid-induced constipation (OIC) cause economic losses in Japanese patients with chronic musculoskeletal pain.
- The results of this study suggest that health care providers treating chronic musculoskeletal pain should take care to also consider the economic burden of constipation in their patients.

INTRODUCTION

- A certain percentage of patients with chronic musculoskeletal pain also have constipation,[1] but the economic burden in these patients has not been fully investigated.
- Chronic musculoskeletal pain is often treated with opioid analgesics, which frequently cause constipation as a side effect.
- Constipation, as well as constipation-related abdominal pain, flatulence, and gastroesophageal reflux, can decrease quality of life and activities of daily living.

OBJECTIVES

To investigate the economic burden of constipation and willingness to pay (WTP) for constipation treatment in patients with chronic musculoskeletal pain being treated at an orthopedic surgery department, anesthesiology department, or pain clinic in Japan.

METHODS

Study Design and Participants

This study was an online cross-sectional survey conducted in June 2024.
Participants were adults aged 18 years or older from the general population recruited from the Macromill Carenet survey panel who are being treated at an orthopedic surgery department, anesthesiology department, or pain clinic for chronic musculoskeletal pain.

Outcomes

- Constipation symptoms (score*1 based on presence of constipation, frequency, and severity)
  *1: Constipation Scoring System (0-30 points)
- In patients with constipation:
  - Impact on work productivity (Work Productivity and Activity Impairment [WPAI], productivity loss)
  - Financial burden of constipation symptoms, willingness to pay (WTP) for relief of constipation symptoms*2

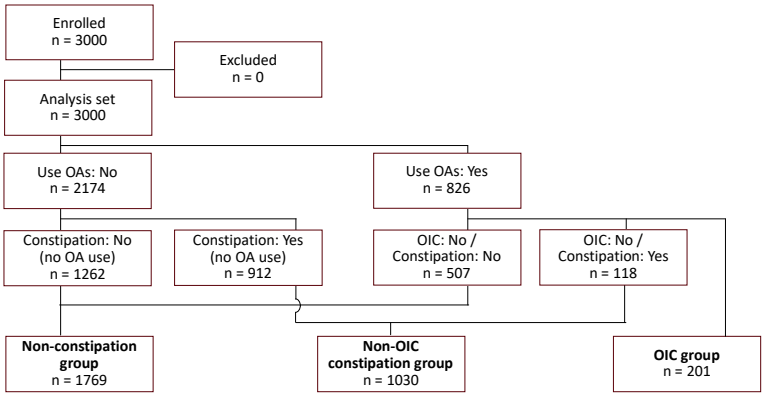
  *2: WTP is also tabulated for the non-constipation group.

Statistical Analysis

- Responses were analyzed using descriptive statistics (frequency tabulation and summary statistic calculation).
- Productivity loss was calculated with a predefined formula using the average earnings obtained from the Basic Survey on Wage Structure and the Monthly Labour Survey of Japan.

RESULTS

Figure 1. Flow chart



OA, opioid analgesic; OIC, opioid-induced constipation

Table 1. Characteristics of participants

	Overall (n = 3000)	Overall constipation group (OIC + non-OIC constipation) (n = 1231)	OIC group (n = 201)	Non-OIC constipation group (n = 1030)	Non-constipation group (n = 1769)
Age (median [IQR (25%, 75%)])	64 [54, 72]	64 [54, 74]	58 [43, 67]	66 [55, 74]	63 [54, 71]
Gender (M / F) (n)	1793/1207	687/544	121/80	566/464	1106/663
Currently working (n, %)	1612 (53.7)	620 (50.4)	137 (68.2)	483 (46.9)	992 (56.1)
Working style: Desk work (remote) (n, %)	202 (6.7)	90 (7.3)	27 (13.4)	63 (6.1)	112 (6.3)
Working style: Desk work (at office) (n, %)	546 (18.2)	208 (16.9)	63 (31.3)	145 (14.1)	338 (19.1)
Total constipation symptom score (median [IQR (25%, 75%)])	-	9.0 [6.0, 12.0]	11.0 [7.0, 14.0]	9.0 [6.0, 12.0]	-

Figure 2. WPAI due to constipation (unit: %)

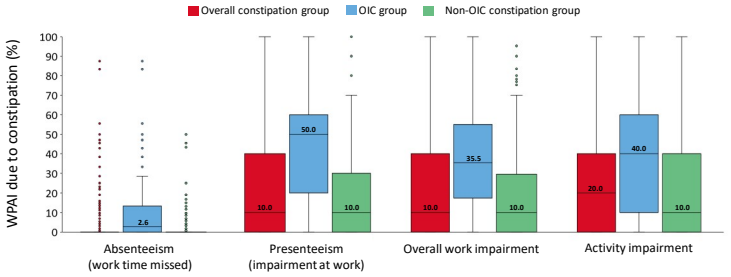


Figure 3. Productivity loss due to constipation (unit: yen / week)

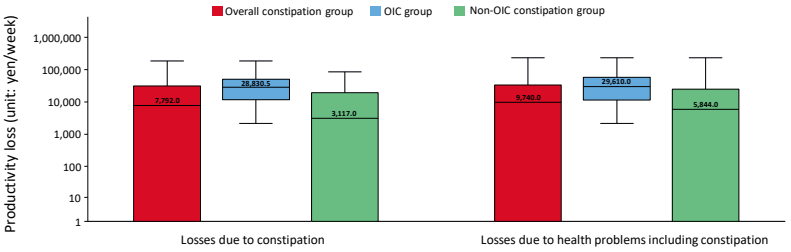


Figure 4. Financial burden and WTP (unit: yen / month)

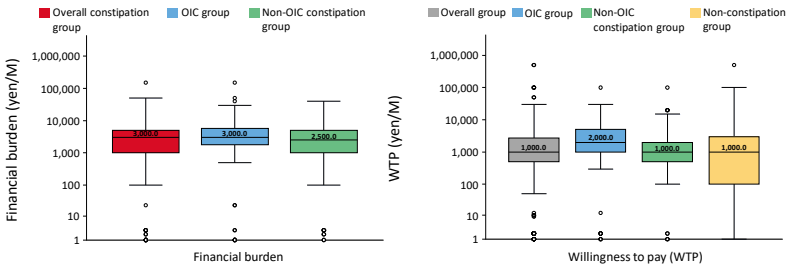
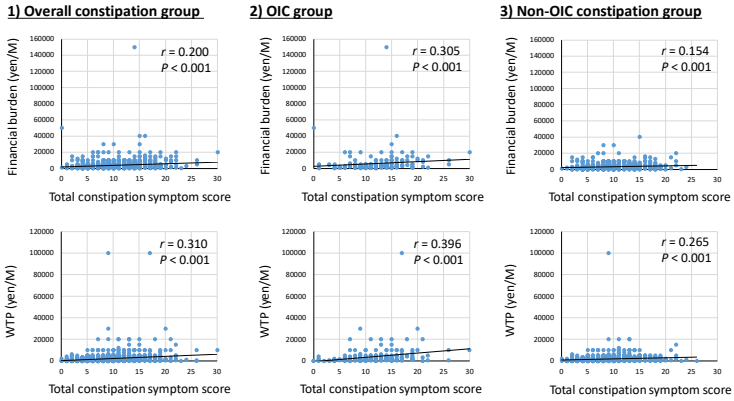


Figure 5. Correlations between constipation symptom score and financial burden/WTP



DISCUSSION

OIC is known to impose a significant economic burden on patients and increase healthcare costs.[2]
To the best of our knowledge, this study is the first to show that constipation and OIC cause economic losses in Japanese patients with chronic musculoskeletal pain. Our findings revealed that among Japanese patients with musculoskeletal pain, OIC was associated with greater productivity loss and higher WTP compared to non-OIC constipation.
A limitation of this study is that we utilized a web-based survey system, which may have introduced selection bias related to technology literacy.
The results of this study suggest that health care providers treating chronic musculoskeletal pain should take care to also consider the economic burden of constipation in their patients.

Disclosures:

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References:
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2. Wan Y, Corman S, Gao X, Liu S, Patel H, Mody R. Economic burden of opioid-induced constipation among long-term opioid users with noncancer pain. Am Health Drug Benefits. 2015 Apr;8(2):93-102.

Abbreviations: M, month; OA, opioid analgesic; OIC, opioid-induced constipation; WPAI, Work Productivity and Activity Impairment; WTP, willingness to pay