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Difference in health-related quality of life between anxiety and depressive symptoms in Japanese patients with plaque psoriasis: the ProLOGUE study

Dear Editor

Anxiety symptoms and depressive symptoms are observed in approximately 20%–50% and 30% of patients with psoriasis, respectively.[1,2] To date, however, evidence for the association of these symptoms with patients' direct perception of their disease (called patient-reported outcomes [PROs]) remains limited. We assessed the association of anxiety symptoms and depressive symptoms with the severity of psoriasis, psoriatic symptoms, health-related quality of life (HRQoL) and satisfaction levels in Japanese patients with psoriasis using baseline data of participants from a single-arm, open-label, multicentre, prospective cohort study – ProLOGUE (Japan Registry of Clinical Trials identifier: jRCTs031180037).[3] Patients (aged ≥18 years) who had plaque psoriasis without peripheral arthritis symptoms and were eligible for self-administration of brodalumab were enrolled at 15 facilities across Japan (study period, October 2017–March 2020).[3]

The outcomes of interest were the Psoriasis Area and Severity Index (PASI) score and PRO scores captured using an electronic system at baseline, such as the Generalized Anxiety Disorder-7 (GAD-7),[4] Patient Health Questionnaire-8 (PHQ-8),[5] Dermatology Life Quality Index (DLQI), European Quality of Life 5-Dimension 5-Level Utility Index (EQ-5D-5L UI) calculated using the Japanese tariff,[6] Activity Impairment domain of the Work Productivity and Activity Impairment-Psoriasis questionnaire (WPAI-PSO AI)[7] and Treatment Satisfaction Questionnaire for Medication-9 (TSQM-9).[8] Anxiety symptoms and depressive symptoms were defined as a baseline GAD-7 score of ≥5[4] and baseline PHQ-8 score of ≥5,[5,9] respectively.

Seventy-three patients were included in the analysis (male, 82%; median age, 54 years),[3] and anxiety symptoms and depressive symptoms occurred in 20 (27%) and 16 (22%) patients, respectively (Table 1). Notably, 10 (14%) patients had both anxiety symptoms and depressive symptoms. None of the patients reported clinically diagnosed anxiety disorder or depression.

The GAD-7 score was significantly higher in patients with vs without depressive symptoms, and the PHQ-8 score was

Table 1 Clinical characteristics of patients with vs without anxiety symptoms and with vs without depressive symptoms

Clinical parameters	GAD-7 score ≥5 (*n* = 20)	GAD-7 score ≤4 (*n* = 53)	*P* value	PHQ-8 score ≥5 (*n* = 16)	PHQ-8 score ≤4 (*n* = 57)	*P* value
PASI score	12.95 (9.80–16.80)	11.70 (8.20–15.30)	0.26	11.80 (8.40–14.50)	12.60 (9.00–16.10)	0.70
Itch NRS score	4.5 (2.0–7.0)	4.0 (2.0–6.0)	0.42	6.0 (4.0–7.5)	3.0 (1.0–6.0)	0.009
Skin pain NRS score	2.0 (1.0–6.0)	1.0 (0.0–3.0)	0.06	2.5 (1.5–7.0)	1.0 (0.0–3.0)	0.01
SPI-II score	51.88 (49.78–53.29)	54.69 (46.27–60.30)	0.15	47.68 (42.06–51.88)	54.69 (49.08–60.30)	0.002
GAD-7 score	6.5 (5.0–8.0)	0.0 (0.0–2.0)	<0.001	7.0 (2.5–8.0)	0.0 (0.0–4.0)	<0.001
PHQ-8 score	5.0 (2.0–8.0)	2.0 (0.0–3.0)	<0.001	7.5 (6.5–11.5)	2.0 (0.0–3.0)	<0.001
DLQI score	12.0 (7.0–16.0)	6.0 (3.0–8.0)	<0.001	14.5 (10.0–21.0)	6.0 (3.0–8.0)	<0.001
EQ-5D-5L UI score	0.8230 (0.6615–0.8950)	0.8950 (0.8230–1.0000)	0.014	0.7530 (0.5415–0.8810)	0.8950 (0.8230–1.0000)	<0.001
WPAI-PSO AI score, %	45.00 (15.00–70.00)	10.00 (0.00–30.00)	0.008	55.00 (15.00–80.00)	10.00 (0.00–30.00)	0.003
TSQM-9 domain scores, %						
Effectiveness	50.00 (33.33–58.33)	50.00 (33.33–61.11)	0.76	44.44 (33.33–58.33)	50.00 (33.33–61.11)	0.54
Convenience	47.22 (38.89–61.11)	55.56 (50.00–66.67)	0.05	50.00 (30.56–58.33)	61.11 (44.44–66.67)	0.01
Global satisfaction	50.00 (28.57–67.86)	50.00 (35.71–64.29)	0.99	46.43 (32.14–57.14)	50.00 (42.86–64.29)	0.19

Data are presented as median (Q1–Q3), tested using the Wilcoxon rank sum test.
Itch NRS and Skin Pain NRS scores may range from 0 (no itch/pain) to 10 (worst imaginable itch/pain). The SPI-II score may range from 0 to 100, and higher scores indicate fewer sleep-related problems. The GAD-7 score may range from 0 to 21, and a score of ≥5 indicates anxiety symptoms. The PHQ-8 score may range from 0 to 24, and a score of ≥5 indicates depressive symptoms. The EQ-5D-5L UI score may range from –0.025 to 1.000, and higher scores indicate higher health utility. The WPAI-PSO AI score may range from 0% to 100%, and higher scores indicate more impaired regular activity. The TSQM-9 domain scores may range from 0% to 100% each, and higher scores indicate higher levels of satisfaction with medication.
DLQI, Dermatology Life Quality Index; EQ-5D-5L UI, European Quality of Life 5-Dimension 5-Level Utility Index; GAD-7, Generalized Anxiety Disorder-7; NRS, Numeric Rating Scale; PASI, Psoriasis Area and Severity Index; PHQ-8, Patient Health Questionnaire-8; Q, quartile; SPI-II, Sleep Problems Index II; TSQM-9, Treatment Satisfaction Questionnaire for Medication-9; WPAI-PSO AI, Activity Impairment domain of Work Productivity and Activity Impairment-Psoriasis.

significantly higher in patients with vs without anxiety symptoms. No statistically significant difference was observed in the PASI score between patients with vs without anxiety symptoms or patients with vs without depressive symptoms. All the HRQoL-related PRO scores (DLQI, EQ-5D-5L UI and WPAI-PSO AI) were significantly more impaired in patients with vs without anxiety symptoms and patients with vs without depressive symptoms (Table 1).

To estimate the optimal cut-off values of the DLQI score for anxiety symptoms and depressive symptoms, a receiver operating characteristic curve was generated using a logistic regression model. The DLQI score cut-off value was 9 for anxiety symptoms (Fig. 1a) and 10 for depressive symptoms (Fig. 1b).

In the current analysis, anxiety symptoms and depressive symptoms were associated with HRQoL but not with satisfaction (TSQM-9 effectiveness and global satisfaction domains).

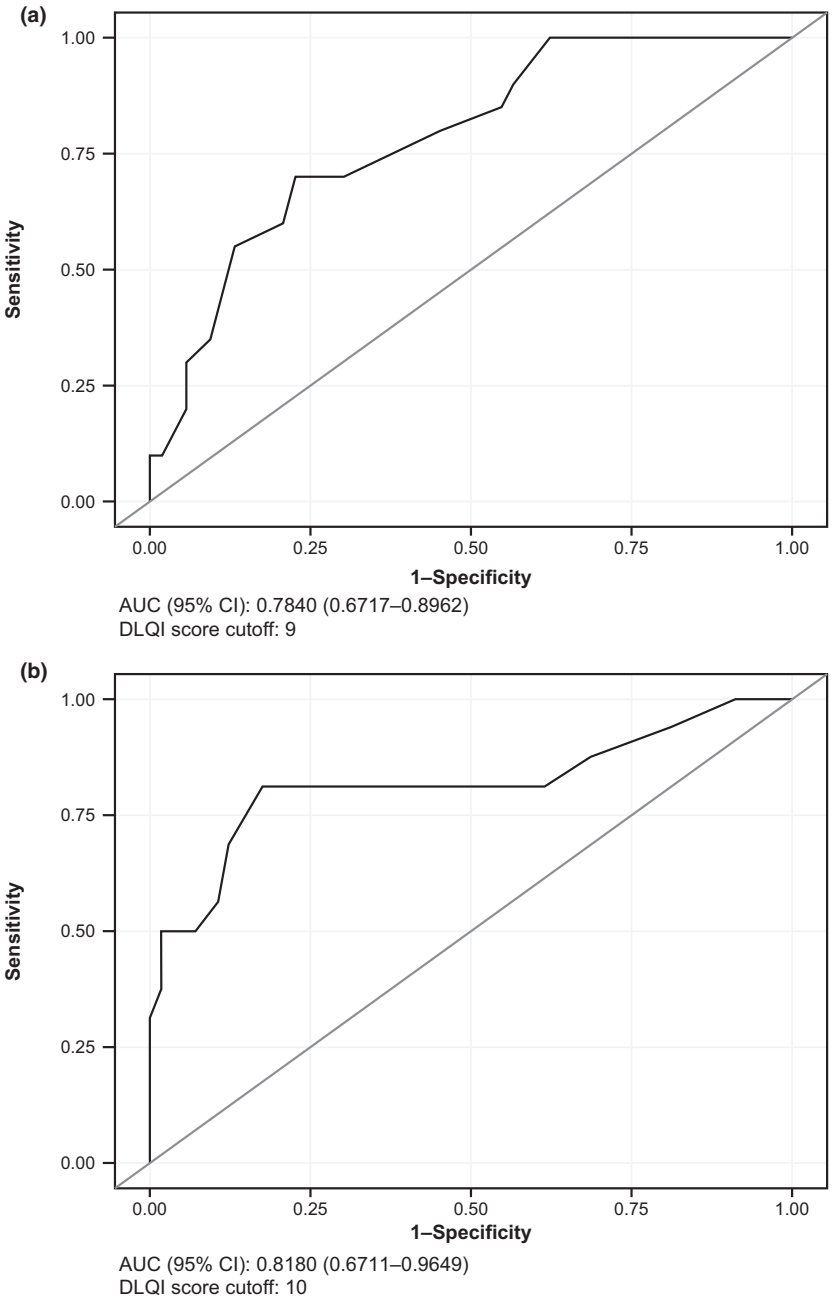

Figure 1 ROC curve analysis for the DLQI score cut-off value for (a) anxiety symptoms and (b) depressive symptoms in patients with psoriasis. An ROC curve was generated using a logistic regression model, with the GAD-7 score (≥5 or ≤4) or PHQ-8 score (≥5 or ≤4) as the objective variable and the DLQI score as the explanatory variable. The DLQI score cut-off value for anxiety symptoms and depressive symptoms was determined using the Youden index. AUC, area under the curve; CI, confidence interval; DLQI, Dermatology Life Quality Index; GAD-7, Generalized Anxiety Disorder-7; PHQ-8, Patient Health Questionnaire-8; ROC, receiver operating characteristic.

Moreover, depressive symptoms were associated with psoriasis-related symptoms, such as itching, skin pain and sleep problems, whereas no association was observed between anxiety symptoms and these psoriasis-related symptoms. Taken together, depressive symptoms may have a greater impact on psoriasis or patients' HRQoL than anxiety symptoms.

Evidence suggests that DLQI measurements are suboptimal indicators for the screening of anxiety symptoms and depressive symptoms in patients with psoriasis.[10] However, a DLQI cut-off score of 11 may help identify patients with anxiety symptoms and depressive symptoms in daily dermatology practice, despite a lack of questionnaire items directly related to anxiety or depression.

In summary, this analysis indicated that a substantial number of Japanese patients with psoriasis suffer from anxiety symptoms, depressive symptoms or their co-occurrence, and a DLQI score ≥11 can be an indicator of anxiety or depressive symptoms in patients with psoriasis. Our results also suggested that patients with depressive symptoms may need more attention in clinical practice than patients with anxiety symptoms.

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Conflicts of interest

Dr Ohata reports grants from Kyowa Kirin Co., Ltd., during the conduct of the study; grants, personal fees and non-financial support from Kyowa Kirin Co. Ltd., Eisai, Eli Lilly Japan, Novartis Pharma, Celgene and Taiho Pharmaceutical outside the submitted work; personal fees and non-financial support from AbbVie, Janssen Pharmaceutical, MSD and UCB Japan outside the submitted work; and personal fees from Hisamitsu Pharmaceutical outside the submitted work. Dr Kanai is an employee of Kyowa Kirin. Dr Murotani reports grants from Kyowa Kirin Co., Ltd., during the conduct of the study. Mr Kitabayashi is an employee of Kyowa Kirin Co., Ltd., and owns stock in the company. Dr Imafuku reports grants and meeting and travel fees from Kyowa Kirin Co., Ltd., during the conduct of the study; grants and personal fees from AbbVie, Eisai, Kaken Pharmaceutical, Kyowa Kirin Co. Ltd., Sato Pharmaceutical, Sanofi, Taiho Pharmaceutical, Mitsubishi Tanabe Pharma, Tsumura, Torii Pharmaceutical, Nippon Zoki Pharmaceutical, Novartis Pharma, Maruho and LEO Pharma outside the submitted work; grants from Pola Pharma outside the submitted work; and personal fees from Astellas, Eli Lilly Japan, MSD, Otsuka, Ono Pharmaceutical, Sun Pharma, GSK, JIMRO, Celgene, Daiichi Sankyo, Sumitomo Dainippon Pharma, Takeda Pharmaceutical, Japan Blood Products Organization, Pfizer, Bristol Myers Squibb, Meiji Seika Pharma, Janssen Pharmaceutical and UCB Japan outside the submitted work.

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Data availability statement

We are unable to share the data at this time because the study began enrolling patients before 1 January 2019, and the informed consent does not specify data sharing, although it does mention secondary use.

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