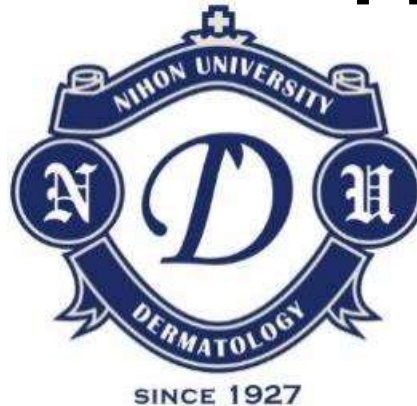


# **Disease burden of neutrophilic dermatoses: Patients' quality of life in generalized pustular psoriasis and hidradenitis suppurativa**



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**03/Dec/2021**

**The 46th Annual Meeting of The Japanese  
Society for Investigative Dermatology**

The 46th Annual Meeting of the Japanese  
Society for Investigative Dermatology

## COI Disclosure

Koremasa Hayama

A position of a board member or advisor: AbbVie, Boehringer  
Ingelheim

Honoraria for lectures: AbbVie, Boehringer Ingelheim, Eisai,  
Novartis, UCB

Scholarship grant : AbbVie, Eisai

# Today's contents

- ① QoL of generalized pustular psoriasis
- ② QoL of hidradenitis suppurativa

# Background

日本皮膚科学会ガイドライン

## 膿疱性乾癬（汎発型）診療ガイドライン2014年度版

日本皮膚科学会膿疱性乾癬（汎発型）診療ガイドライン作成委員会

照井 正<sup>1</sup> 秋山真志<sup>2</sup> 池田志孝<sup>3</sup> 小澤 明<sup>4</sup> 金蔵拓郎<sup>5</sup> 黒澤美智子<sup>6</sup>  
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膿疱性乾癬（汎発型）診療ガイドライン作成協力者

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 THE JOURNAL OF  
DERMATOLOGY  
doi: 10.1111/1346-8138.14523  
Journal of Dermatology 2018; 45: 1235–1270

GUIDELINE

## Japanese guidelines for the management and treatment of generalized pustular psoriasis: The new pathogenesis and treatment of GPP

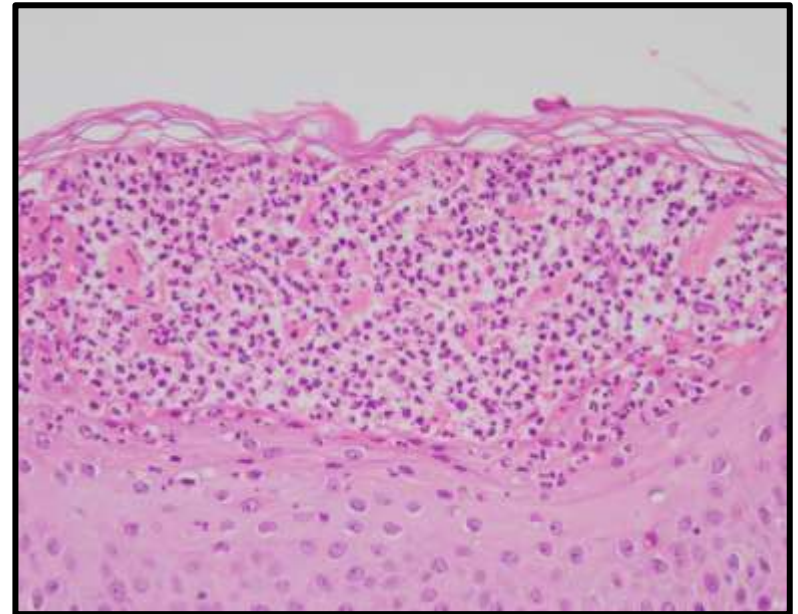
Hideki FUJITA,<sup>1</sup> Tadashi TERUI,<sup>1</sup> Koremasa HAYAMA,<sup>1</sup> Masashi AKIYAMA,<sup>2</sup> Shigaku IKEDA,<sup>3</sup> Tomotaka MABUCHI,<sup>4</sup> Akira OZAWA,<sup>4</sup> Takuro KANEKURA,<sup>5</sup> Michiko KUROSAWA,<sup>6</sup> Mayumi KOMINE,<sup>7</sup> Kimiko NAKAJIMA,<sup>8</sup> Shigetoshi SANO,<sup>8</sup> Osamu NEMOTO,<sup>9</sup> Masahiko MUTO,<sup>10</sup> Yasuhiro IMAI,<sup>11</sup> Kiyofumi YAMANISHI,<sup>11</sup> Yumi AOYAMA,<sup>12</sup> Keiji IWATSUKI<sup>12</sup> The Japanese Dermatological Association Guidelines Development Committee for the Guidelines for the Management and Treatment of Generalized Pustular Psoriasis

Generalized pustular psoriasis (GPP) is a disease consisting of fever, generalized flushing, and multiple sterile pustules.<sup>1, 2)</sup>

It is associated with mucosal symptoms, arthritis, and rarely respiratory failure, ocular symptoms, and secondary amyloidosis, which significantly impairs the patient's QoL.<sup>1,2)</sup>

- 1) 照井 正 他. 日皮会誌. 125: 2211-57, 2015
- 2) Fujita H, et al. J Dermatol. 45:1235-70, 2018

# Background



# Background

- In epidemiological studies using receipt information, the incidence rate in Japan is reported to be **0.001628% or 0.00374%**, indicating that there are 1850-4808 GPP patients when calculated according to the total population. The incidence rate in Matsumoto City was reported to be **0.002037%** in the 2016 survey, leading to the estimation of 2,648 GPP patients in Japan.
- Although some studies have included even pustular psoriasis in quality of life (QoL) surveys of psoriasis vulgaris, QoL studies exclusively focusing on GPP are difficult due to the rarity of the disease.

- 1) 照井 正 他, 臨床医薬30: 279-285, 2014
- 2) Kubota K et al, BMJ Open. 5: e006450, 2015
- 3) Ogawa E et al, J Dermatol. 45: 314-317, 2018

# Background

From 2003 to 2007, a cross-sectional QoL study of Japanese patients with GPP using SF-36v2 was conducted by Department of Dermatology, Okayama University (past survey). The data showed lower scores of GPP patients in three subscales of SF-36v2 such as “general health”, “social functioning”, and “role emotional”.

Recent advances in the treatment of GPP and development of Japanese guidelines for GPP may have changed patients' QOL.

# Purpose

The purpose of this study was to elucidate how the QOL of GPP patients changed over the last ten years by comparing data obtained from past (2003 to 2007) and present (2016 to 2019) cross-sectional surveys.



# Methods

- A questionnaire-based study was performed by sending **questionnaires** to the 668 hospitals/facilities providing dermatological training under the certification of the Japanese Dermatological Association.
- The data of patients who were diagnosed with GPP based on the diagnostic criteria of Japanese guidelines were collected. Data on present patients' **age, sex, clinical symptoms, laboratory findings, and QoL assessed by Japanese-language version of SF-36v2** were obtained from 2016 to 2019.
- This study was approved by Ethics Committee of Nihon University Itabashi Hospital (RK-151110-3).

SF-36v2 includes 36 questions, in a Likert-type or forced-choice format, intended to measure the following eight dimensions of health; “physical functioning”, “role-physical”, “bodily pain”, “general health”, “vitality”, “social functioning”, “role-emotional”, and “mental health”.

The past QoL data used in this study were collected through the survey conducted by the group of Okayama University using SF-36v2 between 2003 and 2007.

The analyzed data have been publicly available on the Ministry of Health, Labor and Welfare's website.

## あなたの健康について

このアンケートはあなたがご自分の健康をどのように考えているかをおうかがいするものです。あなたが毎日をどのように感じ、日常の活動をどのくらい自由にできるかを知るうえで参考になります。お手数をおかけしますが、何卒ご協力のほど宜しくお願い申し上げます。

以下のそれぞれの質問について、一番よくあてはまるものに印 (☑) をつけてください。

問1 あなたの健康状態は？ (一番よくあてはまるものに☑印をつけて下さい)

最高に良い	とても良い	良い	あまり良くない	良くない
▼	▼	▼	▼	▼
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

問2 1年前と比べて、現在の健康状態はいかがですか。  
(一番よくあてはまるものに☑印をつけて下さい)

1年前より、はるかに良い	1年前より、やや良い	1年前と、ほぼ同じ	1年前ほど、良くない	1年前より、はるかに悪い
▼	▼	▼	▼	▼
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# SF-36v2

	High	Low
<b>Physical functioning</b>	Very difficult to perform activities such as bathing and dressing on their own.	Possible to perform all types of activities, including intense activities
<b>Role physical</b>	Problems with work or regular activities in the past month for physical reasons.	No problem for physical reasons when working or doing regular activities in the past month
<b>Bodily pain</b>	Very severe physical pain in the past month has greatly interrupted my usual work.	No physical pain in the past month, and work has not been interrupted.
<b>General health</b>	Health condition is not good and is gradually getting worse.	Health is very good.
<b>Vitality</b>	Feeling tired and exhausted at any time during the past month.	Always full of vitality for the past month.
<b>Social functioning</b>	Over the past month, regular relationships with family, friends, neighbors, and other peers have been severely disrupted for physical or psychological reasons.	In the past month, usual relationships with family, friends, neighbors, and other peers have never been interrupted for physical or psychological reasons.
<b>Role emotional</b>	Always nervous and depressed for the past month	No psychological problems at work or with usual activities in the past month
<b>Mental health</b>	It is very difficult to carry out activities such as bathing or changing clothes on your own.	Capable of performing any type of activity, including strenuous activities

The SF-36 consists of multiple questions designed to measure eight health concepts.

# Statistics

To compare patients' data with those of coeval general Japanese people, we used the **national standard values of Japan in 2007 and 2017**. The value of each SF-36v2 element from the national standard population was adjusted to the **average of 50 points with 10 points standard deviation**. Then the values of individual SF-36v2 elements of the GPP patients were converted accordingly to obtain T-scores. Z-test was performed for comparison with the national standard population.

Differences between the two groups were analyzed using the Mann-Whitney U test. The Fisher's exact test was performed to evaluate the patient's background.

p values equal to or less than 0.05 were considered statistically significant.

# Results : Patient's Background

		Past (2003-2007)	Present (2016-2019)	<i>p</i>
Number of patients	Total	105	83	
	Male	36 (34.3%)	45 (54.2%)	<b>0.0076*</b>
	female	69 (65.7%)	38 (45.8%)	
Mean age (year±S.D)	Total	53.42 ± 17.71	55.84 ± 20.94	0.2964
	Male	54.27 ± 16.27	56.73 ± 20.48	0.3376
	Female	52.96 ± 18.42	54.79 ± 21.44	0.6388

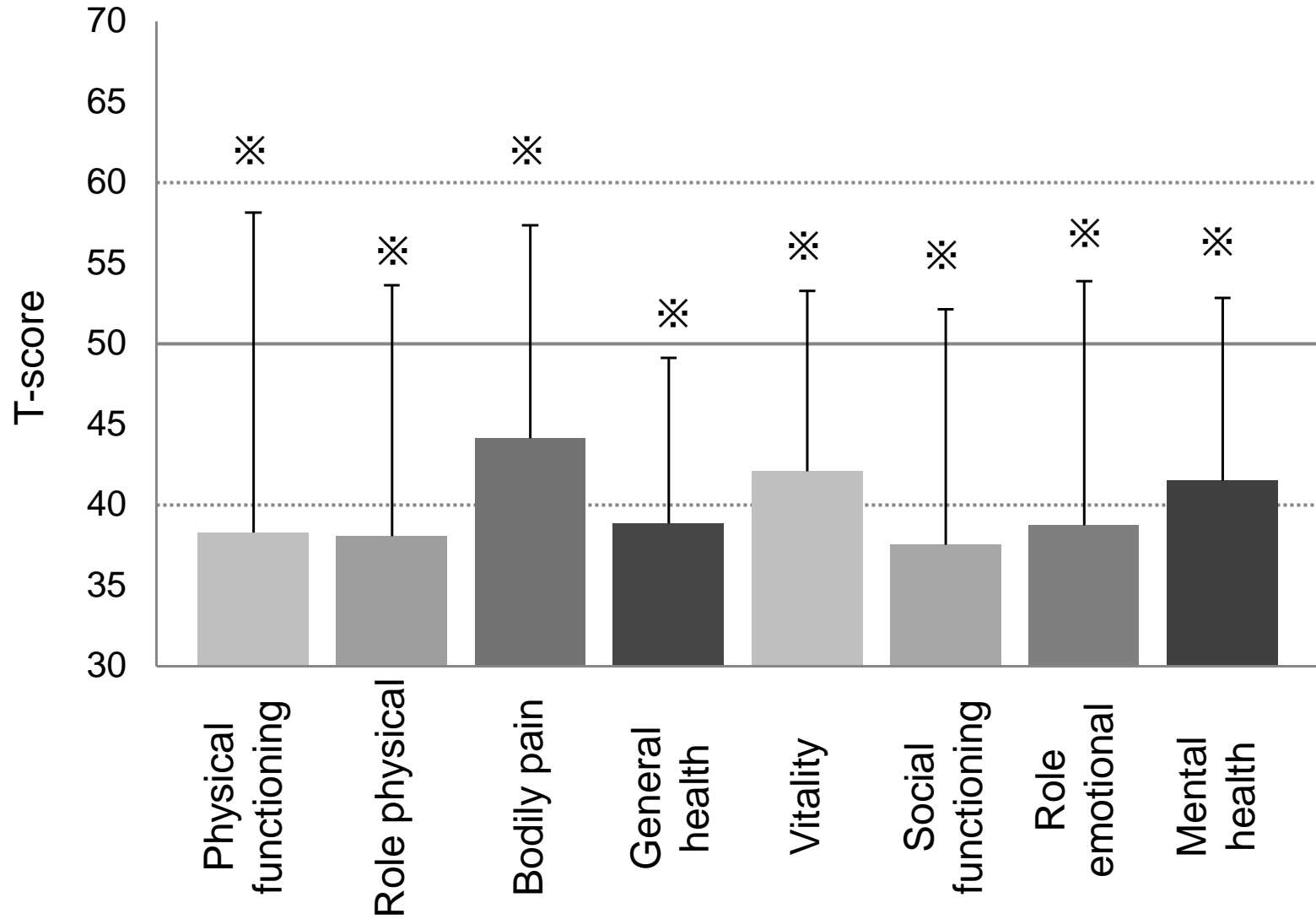
The past group had a larger proportion of female. There was no difference in mean age.

# Results : Patient's Background

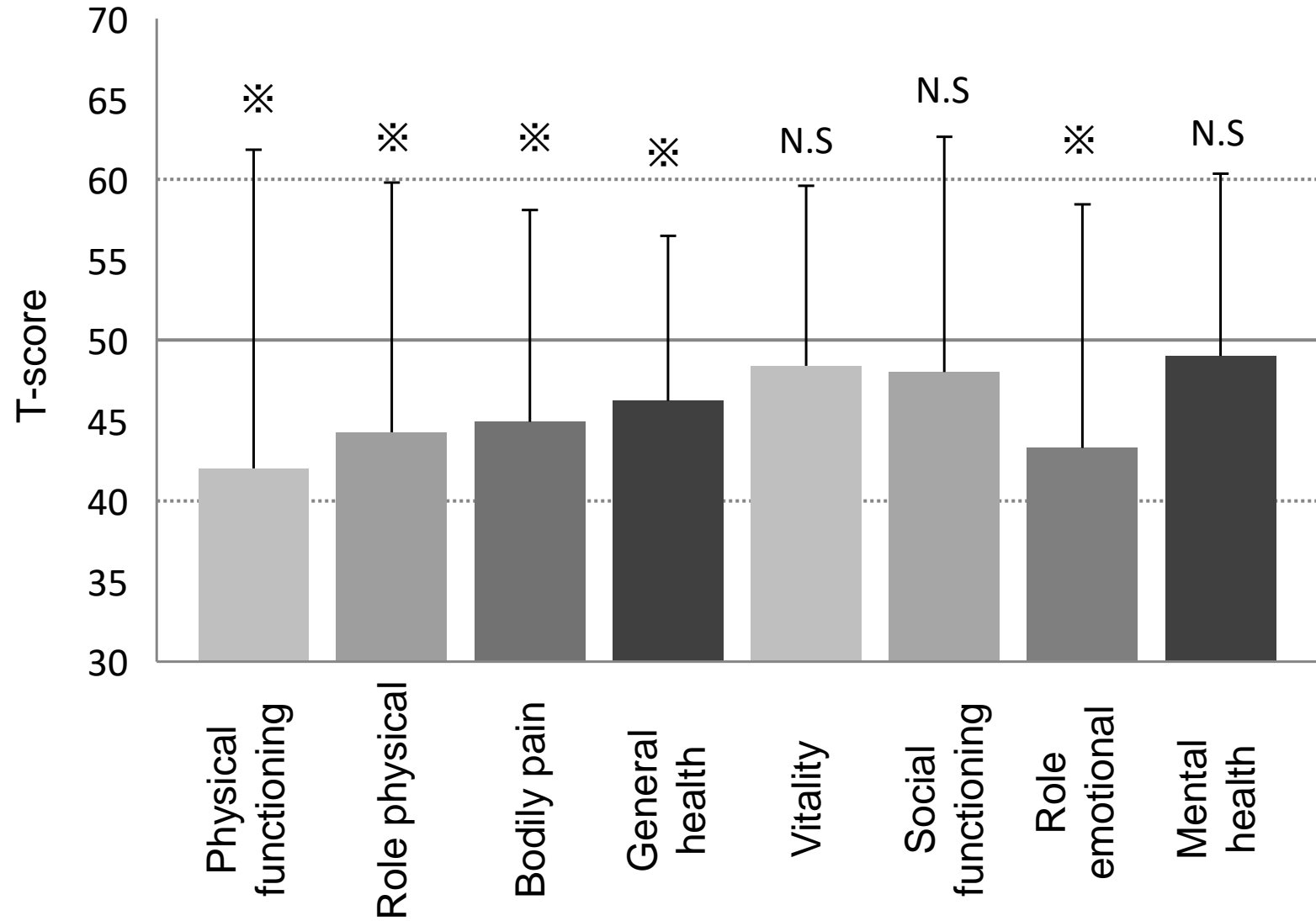
Type	Past (2003-2007)	Present (2016-2019)	<i>p</i>
von Zumbusch 型	99 (94.3%)	80 (96.4%)	0.479
Impetigo herpetiformis	2 (1.9%)	0	
Acrodermatitis continua of Hallopeau	1 (1.0%)	0	
unknown	3 (2.9%)	3 (3.6%)	

There was no significant difference in GPP subtypes.

# Results : SF-36v2(Past)



# Results : SF-36v2(Present)





# Results : Comparison of between past and present

	Past (2003-2007)	Present (2016-2019)	<i>p</i>
Physical functioning	38.28±19.82	42.59±20.02	0.1741
Role physical	38.05±15.55	41.89±14.69	0.0705
Bodily pain	44.13±13.20	45.80±12.54	0.481
General health	38.84±10.27	43.53±8.97	<b>0.0004*</b>
Vitality	42.07±11.20	45.09±10.67	<b>0.0417*</b>
Social functioning	37.51±14.63	46.66±12.54	<b>&lt; 0.0001*</b>
Role emotional	38.74±15.13	40.94±15.38	0.1559
Mental health	41.50±11.34	45.83±12.46	<b>0.0089*</b>

# Summary

- The deviation values (T-scores) of each scale of SF-36v2 in the past group were significantly lower than the national standard.
- The deviation values of the present group showed an **overall improvement**.
- Comparing the present group with the past group, there was a significant improvement in “Vitality”, “Social functioning” and “Mental health”.
- “Physical functioning” and “Social functioning” remained particularly impaired.

# Discussion

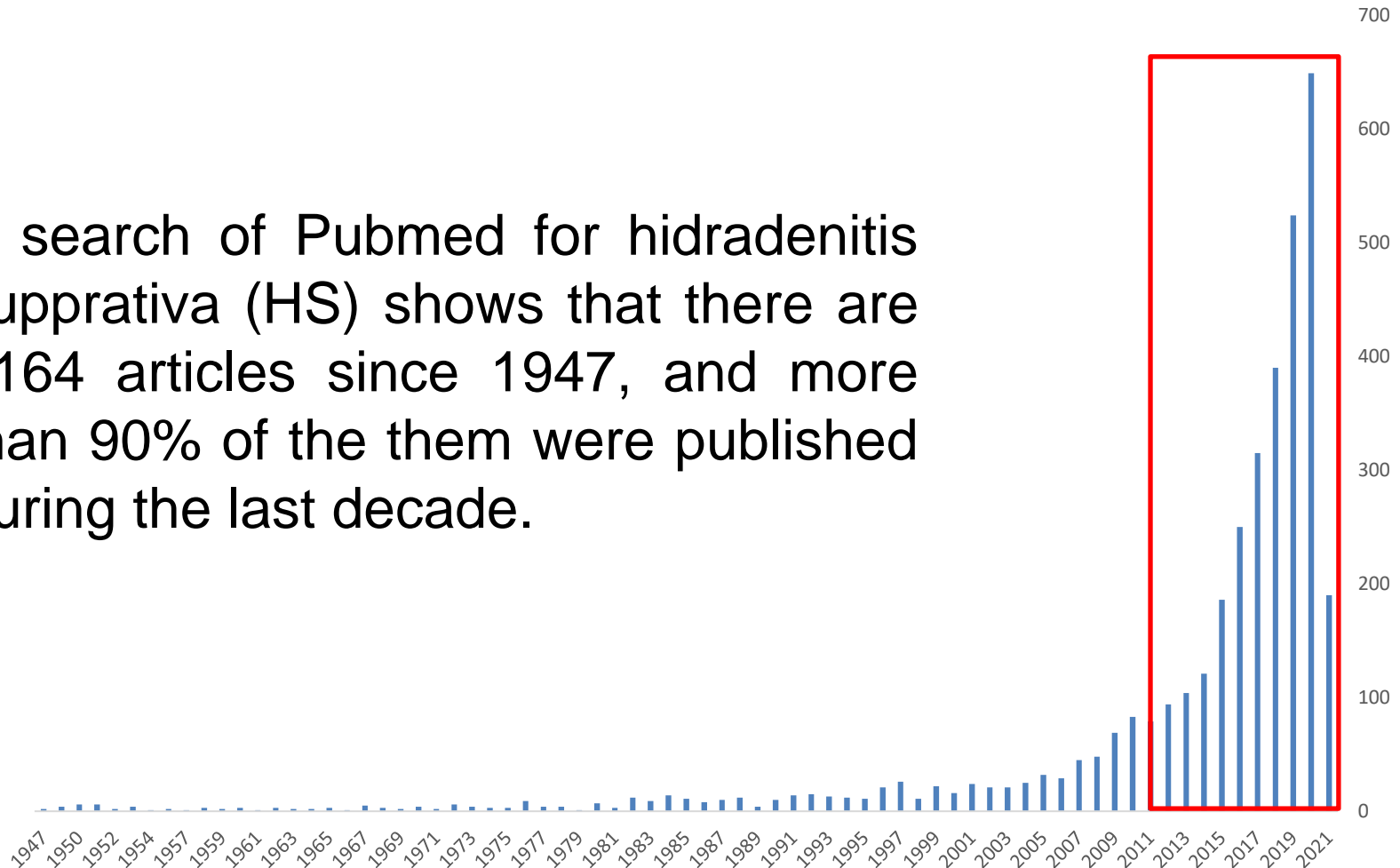
- The improvement in the deviation score of each scale of the SF-36v2 can be attributed to the **development of new treatments** such as the **biologics**, and the establishment of **guidelines**.
- However, since some items of SF-36v2 remain significantly impaired, not only the assessment of symptoms but also social supports are necessary.
- Because this was a cross-sectional study, the improvement in QoL in individual patients is unknown.

# Today's contents

- ① QoL of generalized pustular psoriasis
- ② QoL of hidradenitis suppurativa

# Number of papers related to HS

A search of Pubmed for hidradenitis supprativa (HS) shows that there are 3164 articles since 1947, and more than 90% of the them were published during the last decade.



# Clinical pictures of HS (Cases in our hospital)



# Inflammation or Infection?

**Hidradenitis  
Suppurativa** **≠** **Infection of  
Sweat gland**

Traditionally, the name “**hidradenitis**” has been used, but in fact, its identity is **follicular inflammation**. It is not an infectious disease.

# Diagnosis of HS based on European S1 guidelines

**Two diagnostic criterion for HS**

## **Primary positive diagnostic criteria**

- 1) HS lesions persist more than **2 × /6 months**
- 2) Presence of nodules, abscesses, sinus tracts, and scarring in axilla, genito-femoral area, perineum, gluteal area and infra-mammary area of women

## **Secondary positive diagnostic criteria**

- 1) High incidence of family history
- 2) Negative swab or the presence of normal skin flora



# Guide to the management of HS in Japan

日本皮膚科学会ガイドライン

## 化膿性汗腺炎診療の手引き 2020

化膿性汗腺炎診療の手引き策定委員会

葉山惟大 <sup>1</sup>	井上里佳 <sup>2</sup>	大槻マミ太郎 <sup>3</sup>	大嶺卓也 <sup>4</sup>	門野岳史 <sup>5</sup>
黒川一郎 <sup>6</sup>	佐藤伸一 <sup>7</sup>	清水 宏 <sup>8</sup>	高橋健造 <sup>4</sup>	鳥居秀嗣 <sup>9</sup>
乃村俊史 <sup>8,10</sup>	林健太郎 <sup>4</sup>	林 伸和 <sup>2</sup>	藤田英樹 <sup>1</sup>	前川武雄 <sup>3</sup>
森田明理 <sup>11</sup>	吉崎 歩 <sup>7</sup>	照井 正 <sup>1</sup>		

Published in the January 2021 issue of the Journal of the Japanese Dermatological Association.

# The actual picture of HS in Japan



JAPANESE  
DERMATOLOGICAL  
ASSOCIATION




THE JOURNAL OF  
DERMATOLOGY

doi: 10.1111/1346-8138.15378

*Journal of Dermatology* 2020; ●●: 1–6

ORIGINAL ARTICLE

## Questionnaire-based epidemiological study of hidradenitis suppurativa in Japan revealing characteristics different from those in Western countries

Koremasa HAYAMA,<sup>1</sup>  Hideki FUJITA,<sup>1</sup>  Takashi HASHIMOTO,<sup>2</sup>  Tadashi TERUI,<sup>1</sup> The Japanese HS Research Group

<sup>1</sup>*Division of Cutaneous Science, Department of Dermatology, Nihon University School of Medicine, Tokyo,* <sup>2</sup>*Department of Dermatology, Osaka City University Graduate School of Medicine, Osaka, Japan*

The patient background is different from that of Western countries.

# Differences in patient background from Westerns

	Western	Japan
<b>Prevalence</b>	1-4%	?
<b>M:F</b>	1:2	2:1
<b>Onset of symptoms (age, years)</b>	10s–20s	30s
<b>Commonly affected sites</b>	Axilla, groin, inframammary region	Groin > Axilla > Buttock
<b>Family history</b>	30-40%	2-3%
<b>Severity</b>	Hurley III 4%	Hurley III 20-40%
<b>Comorbidities</b>	Obesity, Diabetes mellitus, Crohn's disease, Hirsutism	Diabetes mellitus

**More common in males.**

**Different sites of predilection.**

**Less family history.**

**Severer cases.**

**Inflammatory bowel disease**

- 1) Zouboulis CC et al. J Eur Acad Dermatol Venereol. 29: 619-44, 2015
- 2) Kurokawa I et al, J Dermatol. 42: 747-9, 2015.
- 3) Hayama K, et al. J Dermatol. 47:743-8, 2020

# QoL of HS

- HS causes malodor, contractures, pain, and significantly impairs the quality of life(QoL) of patients.
- Many studies have shown that the QoL of HS patients is impaired.<sup>1, 2)</sup>
- The QoL of patients with HS in Japan is unknown.
- How patients' QoL is changed compared to the general population has not been sufficiently investigated.

1) Onderdijk AJ, et al. J Eur Acad Dermatol Venereol. 27:473-8, 2013

2) Alavi A, et al. Am J Clin Dermatol. 16:61-5, 2015

# Patients & Methods

- Patients' data was collected by questionnaire from 21 institutions designated by Japanese Dermatological Association for clinical dermatology training.
- Data on age, sex, past history, disease duration, Hurley stage, PGA, modified Sartorius score (MSS), and QoL by SF-36v2 and DLQI were collected.
- The study was approved by the Ethics Committee of Nihon University Itabashi Hospital (#RK-180313-7).

# Patients & Methods

- SF-36v2 (MOS 36-Item Short-Form Health Survey version 2) is currently the most internationally used health-related quality of life scale. It is a comprehensive QoL scale that is not limited to the type of disease.
- Elements of SF-36v2 are composed of “Physical functioning”, “Role physical”, “Bodily pain”, “General health”, “Vitality”, “Social functioning”, “Role emotional”, and “Mental health”.
- To compare patients’ data with those of healthy people, we used the national standard value of Japanese healthy subjects. Elements data from healthy people were adjusted to the average 50 points with 10 points standard deviation. Then patients’ data of the elements were converted accordingly.

# Results

## Patients

- Male : 49    Female : 14
- 10 had family history
- Obesity : 18, Diabetes 13
- Age :  $45.11 \pm 10.97$  years
- Disease duration :  $188.6 \pm 109.9$  month

Male  
dominancy

Less family case

Low incidence of combabilities

Long duration

## Severity of HS

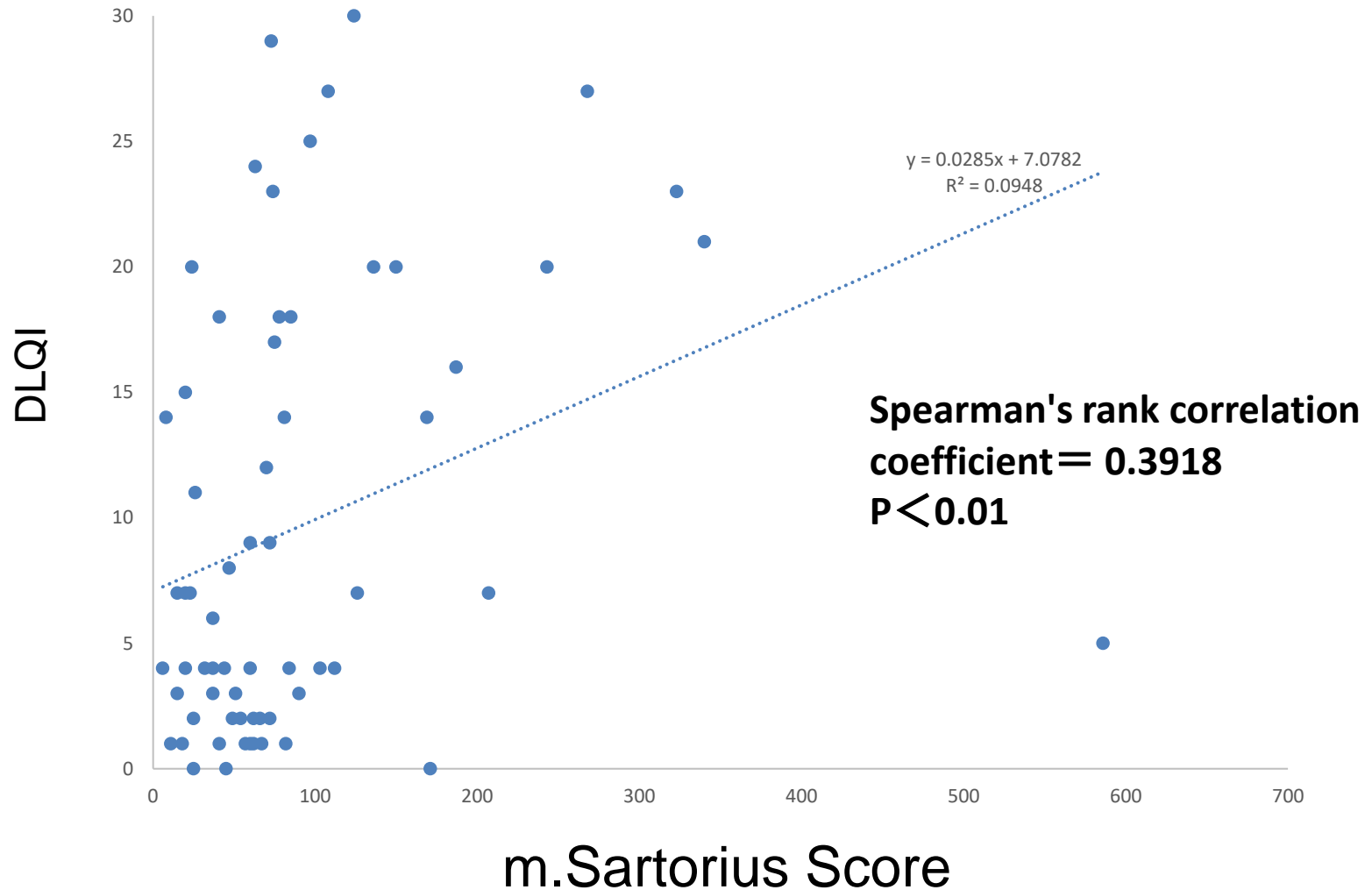
- Hurley stage: I : 8、 II : 21、 III : 34
- PGA: mild : 16, moderate : 17, severe : 21, most severe : 9
- mSartorius Score :  $89.28 \pm 94.53$

Severer cases

## QoL score

- DLQI :  $9.87 \pm 8.85$

# Results: Correlation between DLQI and MSS

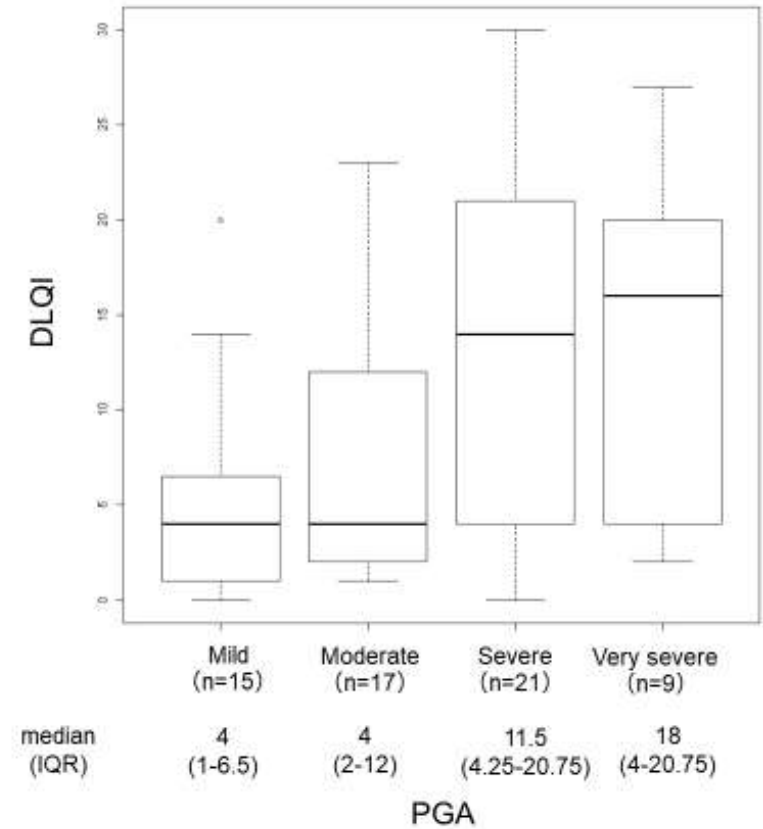
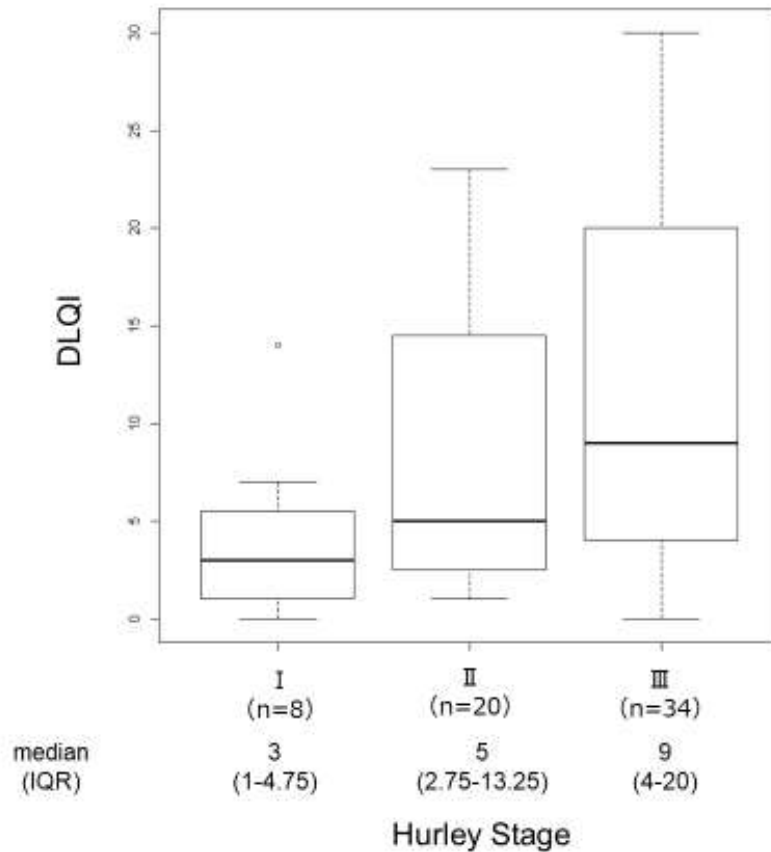


The correlation coefficient was 0.39, indicating a moderate positive correlation.

Hayama K, Fujita H, et al. (submitted)

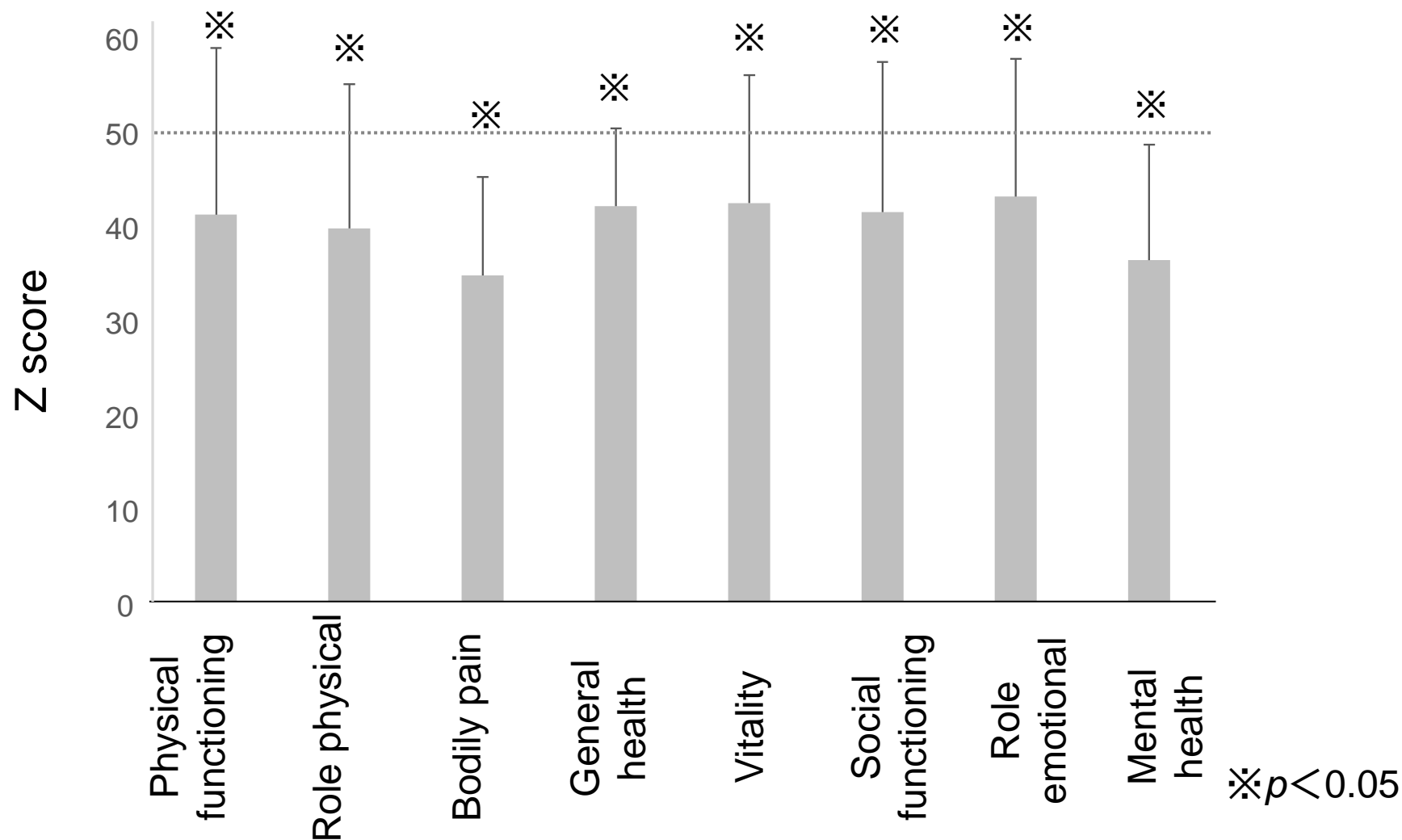


# Results: Correlation between DLQI and Severity



The results showed that both Hurley stage and PGA-based severity classification correlated with DLQI.

# Results: Analysis of SF-36v2



All items were statistically significantly lower than the national norm.

# Discussion

- Although the number of cases is small, this study shows that QoL of Japanese HS patients is impaired compared to standard population.

It is necessary to conduct surveys in consideration of regional lifestyles.

We are currently planning a study to investigate the eating and bathing habits of HS patients, which has recently been approved by the Ethics Committee.



<https://amanaimages.com/info/inform.aspx?searchkey=22481000761&groupcd=220978&no=10>  
<http://gahag.net/002640-hand-rolled-sushi/>  
[http://forest17.com/syoku2/syok2\\_3429.html](http://forest17.com/syoku2/syok2_3429.html)

# Take Home Message

- The QoL of patients with both pustular psoriasis and hidradenitis suppurative is low.
- Although the QoL of GPP patients has improved, there are still some low QoL items that require not only treatment progresses but also social supports.
- The QoL of HS patients correlates with the severity of the disease.