

Sex Differences in Patients With Chronic Hand Eczema (CHE): Disease Manifestations and Quality of Life (QoL) - Results From A Cross-sectional Multi-national Study

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Conclusions

- This global study in Canada, France, Germany, Italy, Spain and the UK found that Chronic hand eczema (CHE) manifests differently by sex.
- While age at onset and diagnosis was similar between sexes, more females were diagnosed by general practitioners and more males by specialists.
- More females reported CHE to be severe at its worst, with more affected hand and wrist areas and new lesions, but lower current levels of symptoms like sleep disturbances and itching, possibly reflecting differences in symptom perception.
- The health-related quality of life (HRQoL) impact appeared greater in females, with higher negative effects on daily life and psychological health.
- Consideration of sex differences is key to better manage CHE in clinical practice.

Objectives

The objective is to investigate the differences in the manifestations and impacts of CHE between males and females.

Background

- CHE is a heterogeneous, inflammatory skin disease affecting the hand(s) and/or wrist(s) and characterized by symptoms of itch and pain.¹
- It is defined as hand eczema (HE) that lasts \geq 3 months and/or recurs \geq 2 times a year.²
- CHE is associated with a significant impairment of patient's HRQoL, impacting not only work productivity but also social, psychological and family aspects.³
- Real-world evidence on HRQoL in individuals with CHE remains limited.
- Although some studies show that CHE tends to be more prevalent in females, sex-specific manifestations and burden are not well described in the scientific literature.⁴

Results

Patients' characteristics by sex

- Among the 1,948 participants who self-reported a physician-diagnosed CHE, 64.5% were females (n=1,256). Mean current age (SD) was similar among both sexes: 43.9 years (12.6) for males and 42.9 (12.6) for females (Table 1).
- Males were more likely to be employed and living in urban settings compared to females ($p<0.01$).
- No significant differences were observed in terms of age at first symptoms and age at diagnosis by sex.
- Females were more often diagnosed by general practitioners (48.1% vs. 41.4%, respectively; $p<0.01$), while males were more often diagnosed by specialists (57.8% vs 50.8%; $p<0.01$).

Table 1 Characteristics of participants who self-reported a physician diagnosed CHE by sex

	Male N = 692	Female N = 1256
Current age (years)		
Mean (SD)	43.9 (12.6)	42.9 (12.6)
Current employment situation		
Employed	602 (87.0)**	883 (70.4%)
Unemployed	90 (13.0%)	372 (29.6%)
Current residence		
Urban	600 (86.6)**	971 (77.3%)
Rural	92 (13.4%)	285 (22.7%)
Age at first signs or symptoms of CHE (years)		
Mean (SD)	24.5 (15.1)	23.3 (14.8)
Age at first diagnosis (years)¹		
Mean (SD)	27.0 (15.4)	25.7 (15.2)
Specialty of the physician who made the initial diagnosis²		
Family Practitioner / General Practitioner	287 (41.4%)	604 (48.1%)**
Specialist ³	400 (57.8)**	638 (50.8%)

¹ 58 males and 164 females did not report their year of diagnosis.

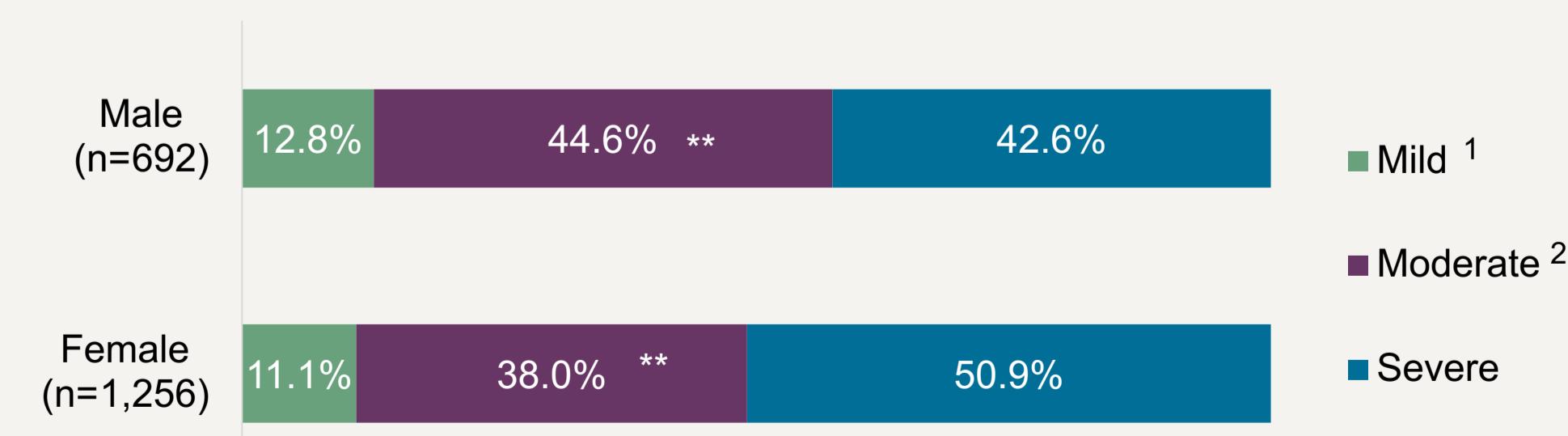
² 5 males and 14 females reported 'Other' or 'I do not know' / I do not remember'.

³ The 'specialist' category includes 'dermatologist', 'pediatrician', 'allergist/immunologist', 'internal medicine physician' and 'occupational health therapist'.

Disease manifestations by sex

- A higher proportion of females reported the worst-ever severity of their CHE as severe (50.9% vs. 42.6%, respectively; $p<0.01$), meanwhile, a higher proportion of males reported their worst-ever severity as moderate compared to females (44.6% vs 38.0%; $p<0.01$) (Figure 1).
- In the past 6 months, CHE was more likely located on finger(s)/between fingers and palm(s) for females (75.0% and 41.4% vs. 67.1% and 31.5% respectively; $p<0.01$). The differences in other locations of the hands, including the back of the hand, knuckles, wrists, and fingertips, were not significantly different by sex (Figure 2).
- On the contrary, in the past 24 hours, females reported lower VAS scores for pain and sleep disturbance symptoms (2.8 [SD=2.6] and 2.6 [SD=2.8]), compared to males (3.1 [SD=2.7] and 2.9 [SD=2.9]). No significant difference was observed for itch (Figure 3).

Figure 1 Worst severity of CHE by sex



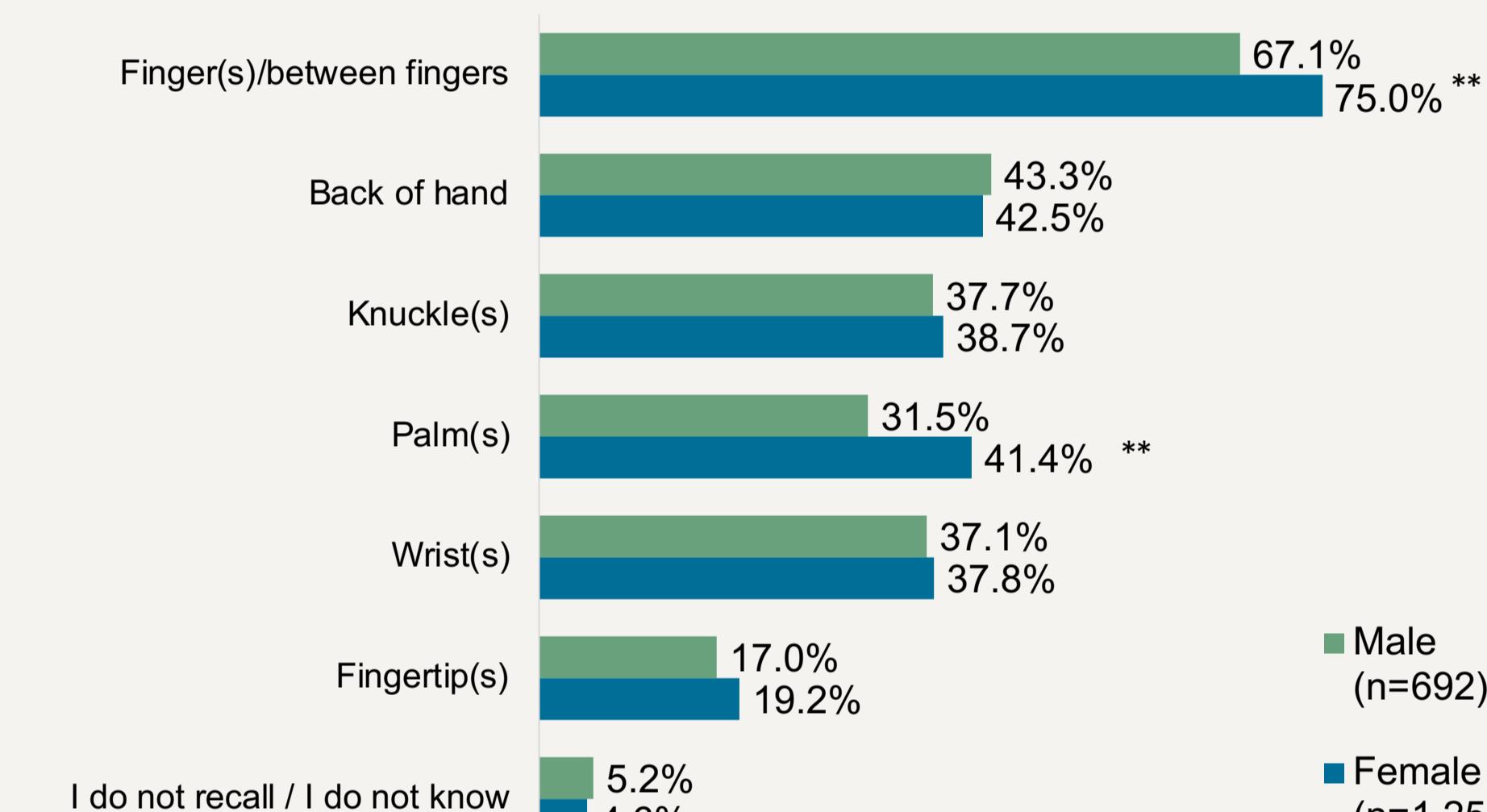
¹ The 'Mild' category includes the 'Clear' and 'Almost clear' categories of the photographic guide.

² The 'Severe' category includes the 'Severe' and 'Very severe' categories.

Methods

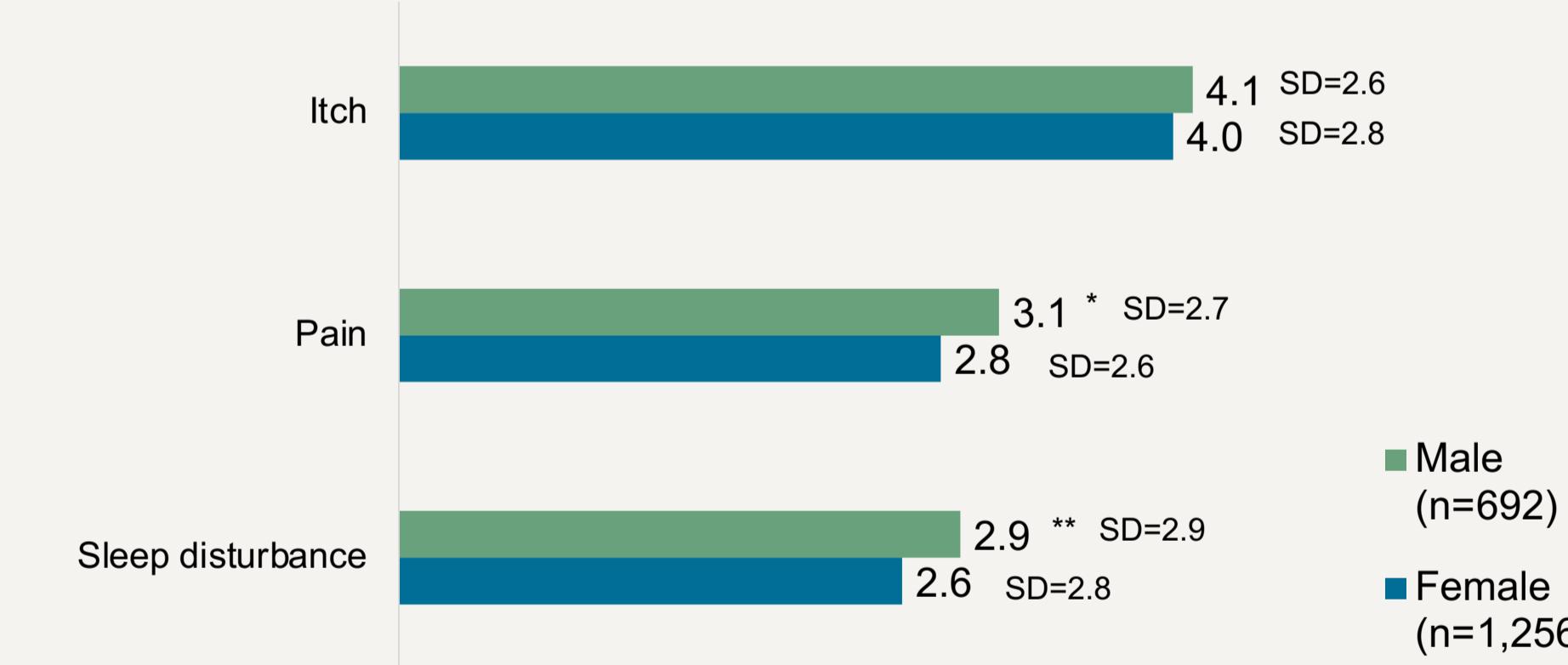
- The CHECK (Chronic Hand Eczema epidemiology, Care, and Knowledge of real-life burden) study recruited adults representative of the general population in Canada, France, Germany, Italy, Spain, and the UK through online panels.
- Sample quotas and weighting adjustments ensured representativeness by demographic and socioeconomic characteristics of the sample in each country.⁵ An additional weighting was also applied to account for size of the 18 to 69-year-olds population in each country.
- In total, 1,948 participants who self-reported a physician diagnosis of CHE were included in analyses.
- The survey included a validated photographic guide⁶ to assess the worst ever severity of CHE signs, and three 10-point Visual Analog Scales (VAS) to measure itch, pain, and sleep disturbance symptoms.
- Hospital Anxiety and Depression Score (HADS), Hand Eczema Index Score (HEIS) and EQ-5D-5L index score, were descriptively analyzed.
 - HADS: (14-question), anxiety (HADS-A) and depression (HADS-D) scores ranging from 0 to 21 each. Higher scores indicate higher distress.⁷
 - HEIS: (9-question), score ranging from 0 to 4. Two subscores are calculated: the HEIS Proximal Daily Activity Limitations (PDAL) score, and the HEIS Embarrassment (EMB), both ranging from 0 to 4. Higher scores indicate a greater impact of hand eczema.⁸
 - EQ-5D-5L: (5-dimension), an index score (utility weights) derived from the UK-cross walk value set.⁹ Health state index scores generally range from less than 0 (where 0 is the value of a health state equivalent to dead) to 1 (the value of full health), with higher scores indicating higher health utility.¹⁰
- Analyses included means (SD) for continuous variables and frequencies (%) for categorical variables.
- Differences between sexes were assessed using the Wilcoxon rank-sum test adapted to complex survey samples for continuous variables and chi-squared test with Rao & Scott correction for categorical variables. Statistical significance was defined as $p<0.05$ (*) and $p<0.01$ (**).

Figure 2 Areas of the hands affected by eczema in the past 6 months by sex¹



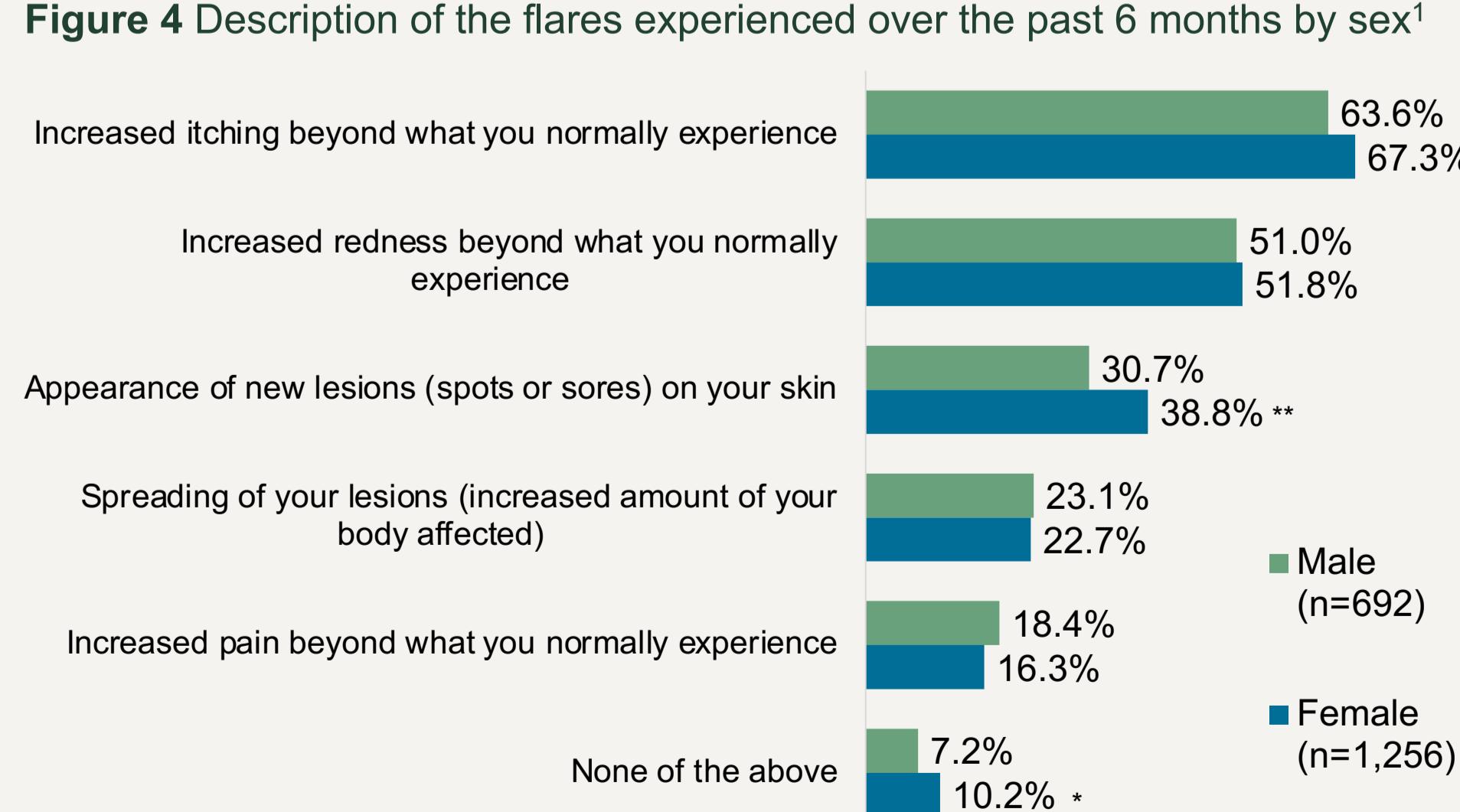
¹ Multiple responses were allowed.

Figure 3 Itch, pain and sleep disturbance scores in the past 24 hours by sex (VAS scales: 0 to 10)



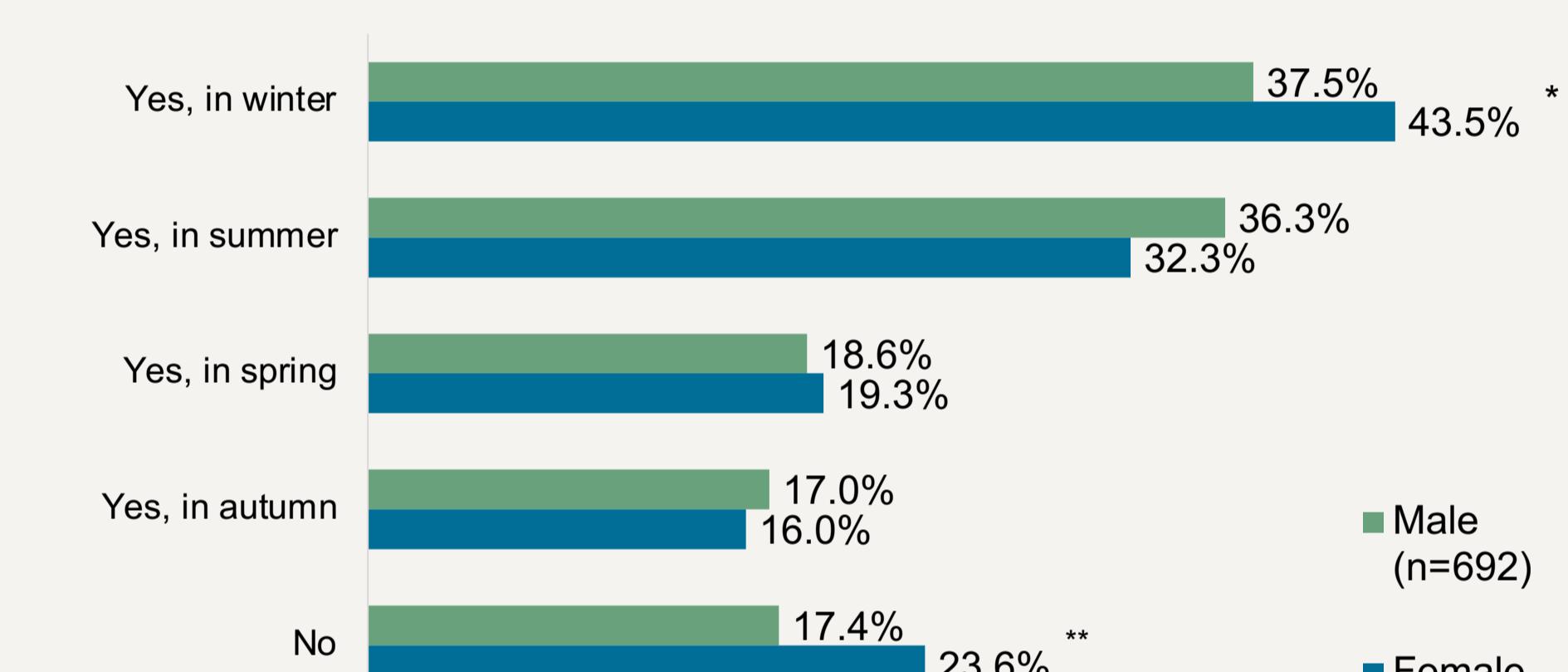
- Over the past 6 months, when considering their flares of CHE, females reported more frequently than males the appearance of new lesions on their skin (38.8% vs 30.7%; $p<0.01$). No differences were found between sex in terms of increased itching, increased redness, increased pain and spreading of lesions during this period (Figure 4).
- For females, CHE was more likely to worsen in winter compared to males (43.5% vs. 37.5%; $p=0.013$). No significant differences were observed for worsening in summer, spring, and autumn. We also noted that females were more likely than males to report that their CHE was not impacted by the seasonality (23.6% vs. 17.4%, $p<0.01$) (Figure 5).

Figure 4 Description of the flares experienced over the past 6 months by sex¹



¹ Multiple responses were allowed.

Figure 5 Worsening of the CHE across seasons by sex¹



¹ Multiple responses were allowed.

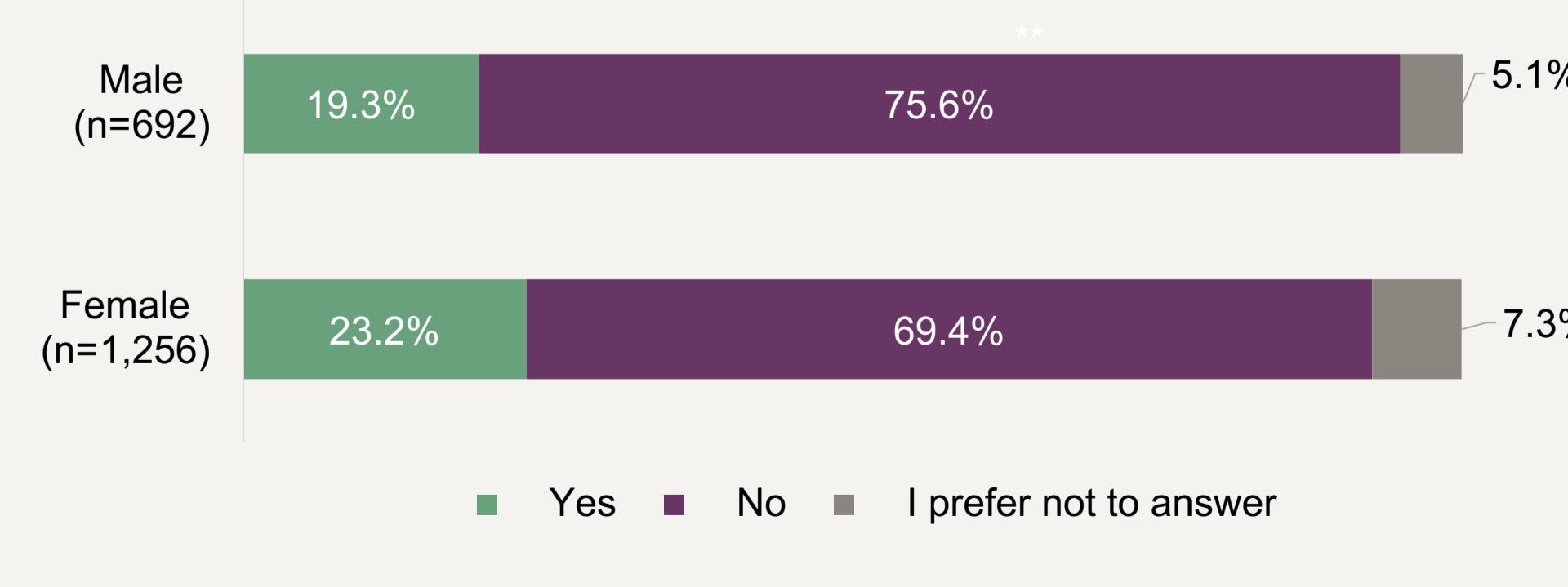
Impact on QoL and mental health by sex

- Females with CHE reported a lower generic QoL than males according to HEIS, EQ-5D-5L and HADS (Table 2).
- On the disease-specific scale (HEIS), females reported a PDAL score of 1.3 (1.1) compared to 1.1 (1.0) for males ($p<0.01$). However, no significant differences were found between sexes for the HEIS total score or the embarrassment subscore.
- Additionally, on the non-disease-specific EQ-5D-5L scale, females had a lower mean score of 0.694 (0.252) versus 0.742 (0.245) for males ($p<0.01$), indicating a greater overall impact.
- According to the HADS, females were more anxious (9.6 [4.7] vs. 8.1 [4.7]; $p<0.01$). However, no difference was seen in the HADS depression score.
- Finally, a higher proportion of males reported not having suicidal thoughts compared to females (75.6% vs. 69.4%) ($p<0.01$) (Figure 6).

Table 2 HEIS, EQ-5D-5L, HADS scores by sex

	Male N = 692	Female N = 1256
HEIS TOTAL score		
Mean (SD)	1.1 (0.9)	1.1 (1.0)
HEIS PDAL score		
Mean (SD)	1.1 (1.0)	1.3 (1.1) **
HEIS Embarrassment score		
Mean (SD)	1.2 (1.1)	1.3 (1.2)
EQ-5D-5L General index value		
Mean (SD)	0.742 (0.245) **	0.694 (0.252)
HADS Anxiety score		
Mean (SD)	8.1 (4.7)	9.6 (4.7) **
HADS Depression score		
Mean (SD)	6.6 (4.2)	7.0 (4.3)

Figure 6 Suicidal thoughts by sex¹



¹ The exact question was 'Have you ever had suicidal thoughts?'.

Abbreviations CHE=chronic hand eczema; HEIS=hand eczema index scale; PDAL=proximal daily activity limitation; HADS=hospital anxiety and depression score; HRQoL= health-related quality of life; SD=standard deviation; VAS=visual analogue scale.

References 1. Quaade AS et al. *Contact Dermatitis*. 2021;84(6):361-74. 2. Thyssen JP et al. *Contact Dermatitis*. 2020;85(5):357-78. 3. Agner T et al. *J Eur Acad Dermatol Venereol*. 2020;34 Suppl 1:4-12. 4. Apfelbacher C et al. *Br J Dermatol*. 2025 May 19;192(5):1047-1054. 5. Deville, Jean C. 1991. *Survey Methodology* 17:163-181. 6. Coenraads PJ et al. *Br J Dermatol*. 2005 Feb;152(2):296-301. 7. Bjelland I et al. *J Psychosom Res*. 2002 Feb;52(2):69-77. 8. Weisshaar E et al. *Dermatol Ther (Heidelberg)*. 2024 Nov;14(11):3047-3070. 9. Hernández