

Patient-Reported Burden of Hereditary Angioedema: Findings From a US Patient Survey

Giovanna Devercelli,¹ Kimberly H. Davis,² Michelle Brown,² Kelly A. Hollis,² Shannon M. Hunter,² Janet Long,³ Gagan Jain,¹ Aleena Banerji⁴

¹Shire, Lexington, MA, USA; ²RTI Health Solutions, Research Triangle Park, NC, USA; ³US Hereditary Angioedema Association, Fairfax City, VA, USA; ⁴Massachusetts General Hospital, Boston, MA, USA

Introduction

- Hereditary angioedema with C1 inhibitor deficiency (C1-INH-HAE) is a rare genetic disease characterized by recurrent attacks of localized, nonpruritic swelling affecting subcutaneous and/or submucosal tissues.¹
- Attacks recur with unpredictable frequency and severity, negatively impacting patients' health-related quality of life (HRQoL), productivity, and overall well-being.
 - Symptoms of moderate to severe intensity can lead to temporary disfigurement and disability, resulting in lost productivity at school or work and emotional distress during and between attacks.²
 - Patients experience impairment across multiple HRQoL dimensions, regardless of location of symptoms, and often have anxiety and depression.^{3,5}
- The burden of HAE on patients' daily lives is a topic of increasing interest, particularly with the growing availability of acute and prophylactic treatment options. Efforts are increasingly being focused on identifying relevant and reliable patient-centric assessment measures.^{5,6}

Objective

- To evaluate the impact of C1-INH-HAE on HRQoL and work productivity in the United States.

Methods

Study design

- Members of the US Hereditary Angioedema Association (HAEA) with a self-reported physician diagnosis of HAE were invited to participate in a web-based survey.
 - Invitations were emailed by the HAEA to a random sample of members.
 - Following completion of informed consent, members completed a survey related to demographics, clinical and disease characteristics, treatment history, burden of HAE symptoms, HRQoL, and work productivity and activity impairment. The survey could be completed in ~30 minutes; participants who completed the survey were provided a \$40 incentive.
 - Data were collected between March 17, 2017 and April 28, 2017.
 - Key eligibility criteria included the following:
 - Age ≥18 years with a self-reported physician diagnosis of HAE type I or II
 - ≥1 HAE attack or prodromal symptom within the last 1 year
 - Treated with a prescription medication for HAE within the last 2 years
 - Ability to complete the questionnaire in English.

Assessment of patient-reported outcomes (PROs)

- The PRO instruments used in the survey included the Hereditary Angioedema Quality of Life questionnaire (HAE-QoL),⁷ Hospital Anxiety and Depression Scale,^{8,9} 12-Item Short Form Survey (SF-12) questionnaire,^{10,11} and the Work Productivity and Activity Impairment questionnaire (WPAI).^{12,13} (Table).

Table: Description of PRO instruments

Assessment	Description	Scoring
HAE-QoL questionnaire ⁷	<ul style="list-style-type: none"> A 25-item disease-specific questionnaire that assesses the extent to which angioedema has affected daily life over the last 6 months Includes 7 dimensions (shown in scoring column) 	<ul style="list-style-type: none"> Total score ranges from 25–135; higher scores represent better HRQoL Score range for individual dimensions: <ul style="list-style-type: none"> Treatment difficulties (4 items): 4–23 Physical functioning and health (4 items): 4–23 Disease-related stigma (3 items): 3–15 Emotional role and social functioning (4 items): 4–20 Concern about offspring (2 items): 2–10 Perceived control over illness (4 items): 4–20 Mental health (4 items): 4–24
HADS ^{8,9}	<ul style="list-style-type: none"> A 14-item screening tool to detect anxiety and depression in a general hospital setting Includes 7 items related to anxiety and 7 items related to depression Assesses how the patient has been feeling in the past 1 week 	<ul style="list-style-type: none"> Anxiety and depression subscale scores range from 0–21 Higher scores indicate a worse degree of psychological morbidity Categories (applicable to both the anxiety and depression subscales): <ul style="list-style-type: none"> 0–7: normal 8–10: mild 11–14: moderate ≥15: severe psychological morbidity
SF-12 questionnaire (version 2.0) ^{10,11}	<ul style="list-style-type: none"> A generic quality of life questionnaire that includes 12 items assessing the following during the past 1 week: general health, physical functioning, role functioning due to physical health problems, role functioning due to emotional problems, pain, vitality, mental health, social functioning PCS-12 and MCS-12 scores are derived from the questionnaire 	<ul style="list-style-type: none"> PCS-12 and MCS-12 scores are standardized to a mean (SD) of 50 (10), per general US population statistics Higher scores indicate better health status
WPAI questionnaire ^{12,13}	<ul style="list-style-type: none"> A 6-item questionnaire that measures the effect of health problems on participants' ability to work and participate in regular activities based on their experiences in the previous 7 days Includes 4 domains: <ul style="list-style-type: none"> Absenteeism: work time missed due to health problems Presenteeism: impairment while working due to health problems Work productivity loss: overall work impairment due to health problems Activity impairment: activity impairment due to health problems 	<ul style="list-style-type: none"> Responses are scored for each domain and then multiplied by 100 to express domains in terms of impairment percentages, with higher numbers indicating greater impairment and less productivity (ie, worse outcomes)

Statistical analyses

- Descriptive analyses were conducted. Continuous variables were reported as the number of available observations, means, and SDs, and categorical variables were summarized by frequency and percentage.
- Scores from PRO instruments were reported overall, and were also stratified by the number of HAE attacks reported by the participants in the past 6 months.
- No imputation was performed for missing values.

Results

- A total of 2961 members of the HAEA were invited. Of these, 707 members were screened, 463 were eligible to participate, and 445 completed the survey (62.9% of the participants screened).

Demographics and clinical characteristics

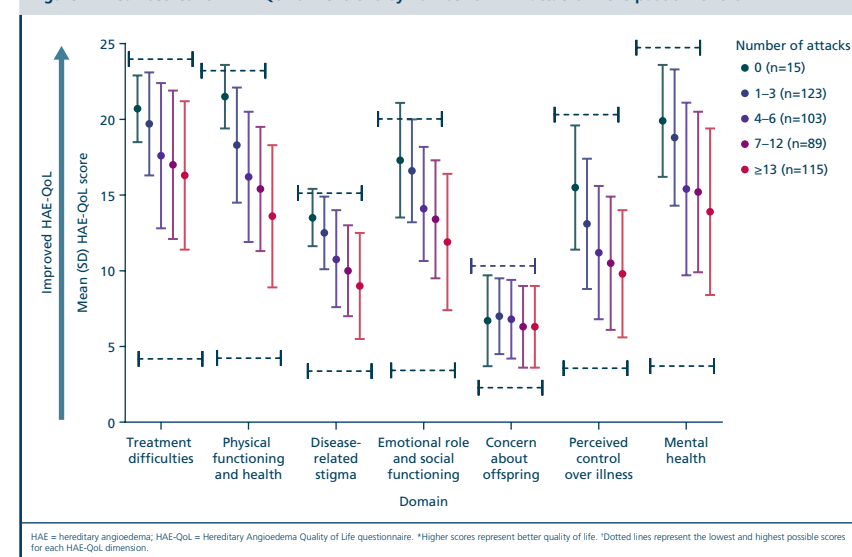
- Most respondents were 18–64 years of age (92.8%), female (78.2%), white (90.3%), and had HAE type I (78.4%).
- Mean (SD) age at symptom onset was 12.5 (9.1) years and mean (SD) age at diagnosis was 20.1 (13.7) years.
- Commonly reported comorbidities included anxiety (35.3%), depression (20.9%), arthritis (19.3%), and high blood pressure (19.3%).

Patient-reported outcomes

HAE-QoL questionnaire

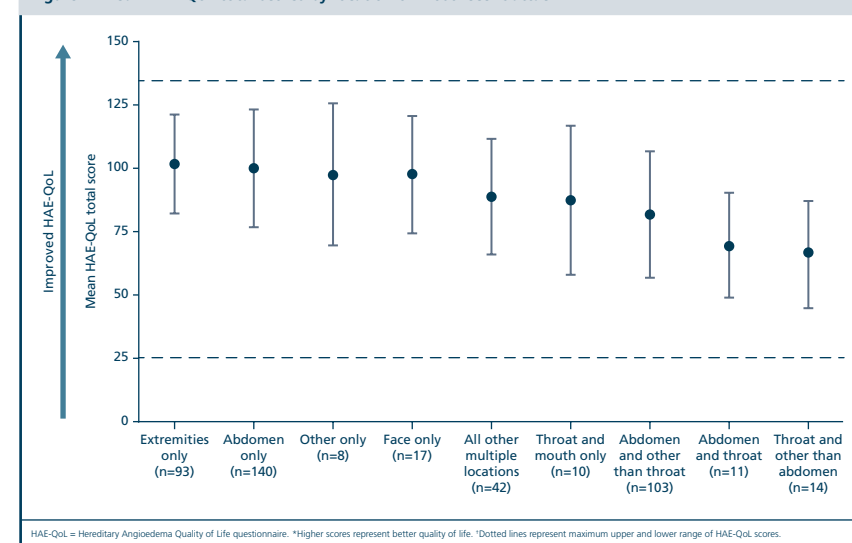
- Mean (SD) total HAE-QoL score was 93.1 (24.9).
 - Mean (SD) HAE-QoL scores by dimension were 17.8 (4.6) for treatment difficulties, 16.1 (4.6) for physical functioning and health, 10.7 (3.3) for disease-related stigma, 14.3 (4.3) for emotional role and social functioning, 6.6 (2.7) for concern about offspring, 11.4 (4.5) for perceived control over illness, and 16.1 (5.5) for mental health.
- Across most dimensions, mean HAE-QoL scores were generally lower (ie, worse HRQoL) among participants reporting higher number of attacks in the past 6 months (Figure 1).
 - Scores for the concern about offspring dimension were similar across all categories of attack frequency.

Figure 1: Mean scores for HAE-QoL dimensions by number of HAE attacks in the past 6 months*†



- Mean HAE-QoL total scores were generally lower among participants whose most recent attack involved the throat (66.0–87.4, n=35) relative to attacks involving extremities only (101.7, n=93; Figure 2).

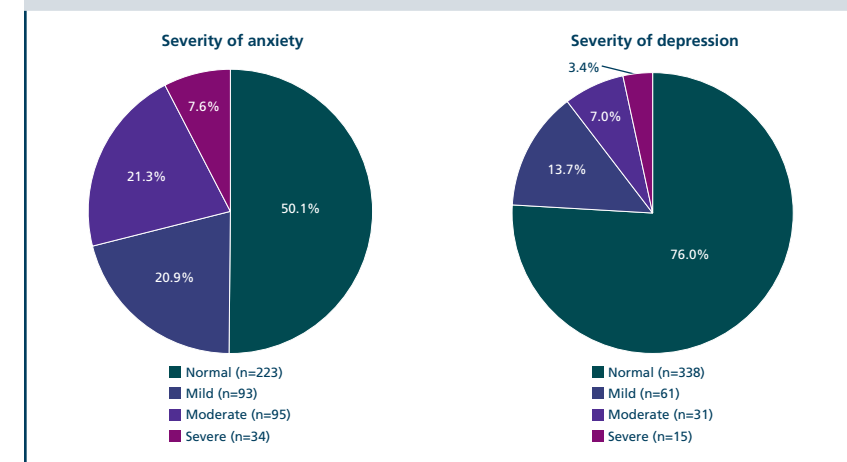
Figure 2: Mean HAE-QoL total scores by location of most recent attack*†



Hospital Anxiety and Depression Scale

- Participants reported mild to severe anxiety (49.9%) and depression (24.0%; Figure 3).
- Subscores were lowest (least severity) in participants reporting 0–3 attacks (mean [SD], 4.3 [3.5] for anxiety and 2.5 [2.9] for depression) and highest (most severe) in those reporting ≥13 attacks (mean [SD], 8.8 [4.7] for anxiety and 6.4 [4.8] for depression).

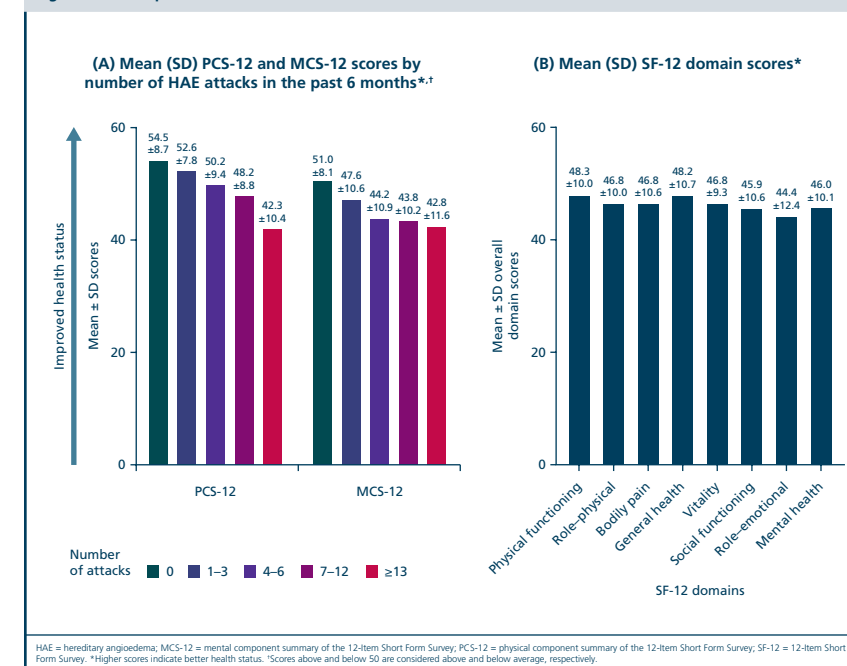
Figure 3: Percentage of participants with anxiety and depression by severity



SF-12 questionnaire (general health status)

- One-quarter (24.8%) of participants rated their general health status as “poor” or “fair,” and 34.2% reported that, at least some of the time during the past week, their physical health or emotional problems interfered with their ability to participate in social activities.
- Mean (SD) overall summary scores of the physical (PCS-12) and mental (MCS-12) components of the SF-12 were 48.6 (9.9) and 44.9 (10.9), respectively.
 - Mean (SD) PCS-12 and MCS-12 scores decreased with increasing number of attacks in the past 6 months (Figure 4A).
 - Mean (SD) scores for each domain of the SF-12 questionnaire are shown in Figure 4B.

Figure 4: SF-12 questionnaire



WPAI questionnaire

- Mean (SD) percentage impairment assessed via the WPAI questionnaire, overall and in patients who reported having HAE attack(s) within the past 7 days, is shown in Figure 5A and 5B, respectively.
- WPAI scores increased with severity of anxiety and depression (Figure 5C, 5D) and generally worsened with increased frequency of HAE attacks (Figure 6).

Figure 5: WPAI scores*

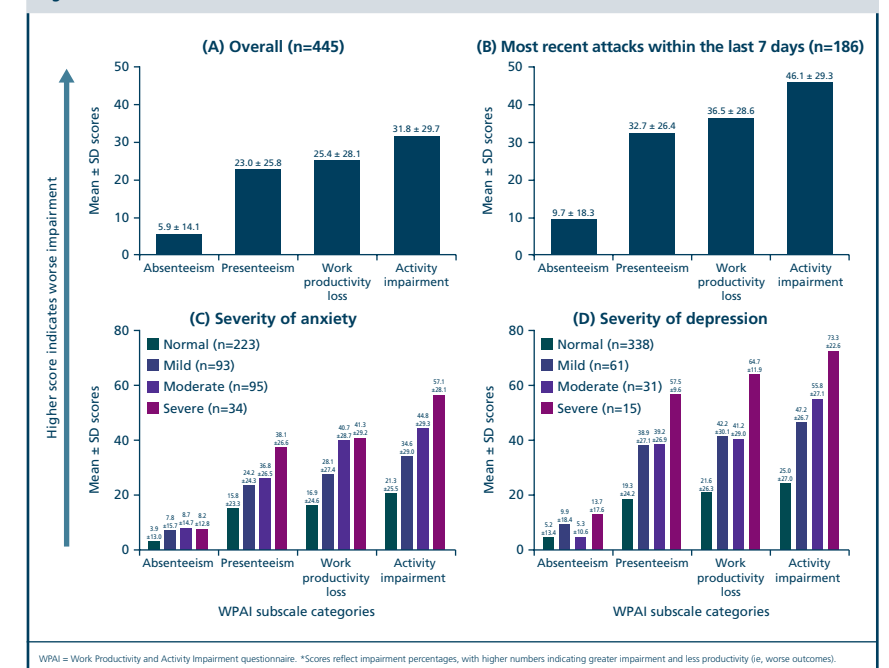
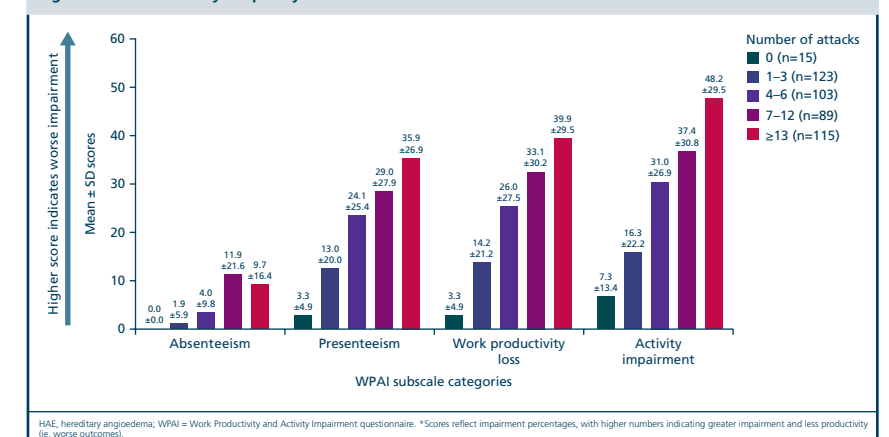


Figure 6: WPAI scores by frequency of HAE attacks*



Conclusions

- Participants with C1-INH-HAE in this US survey reported anxiety, depression, and work productivity and activity impairments, as well as impairments in general health and HRQoL.
- Higher frequency of HAE attacks was associated with a higher burden of disease.
- Despite treatment advancements, the burden of C1-INH-HAE on patients' daily lives remains high.

Mobile and environmentally friendly e-posters

3 ways to access the poster

Send an SMS:
Text 125956
To 43704 (USA only)
+44 7860 033 046 (rest of world)

Access online
www.shirecongressposters.com/125956

Scan QR code

No personal information is stored - standard charges may apply.