Burden of migraine in the 5EU from the patient perspective: A cross-sectional analysis of National Health and Wellness Survey (NHWS) data

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Introduction

Migraine is a neurological disorder that can cause severe disabling pain and affects >10% of the world's population. It is most prevalent amongst adults in their productive age and affects twice as many women as men. Migraine impacts a patient's daily life, health-related quality of life (HRQoL), work productivity, and family life. The National Health and Wellness Survey (NHWS) is a large, self-administered, internet-based survey designed to reflect the general population and conducted annually on a sample of adults across five markets in the world by Kantar Health. The survey uses a random stratified sampling framework to match the demographic distribution of the adult population in each country based on governmental statistics.

NHWS captures the respondents' sociodemographic characteristics, medical conditions, and a score of how they rate their health during the last 12 months using a specified probability, respondents indicating certain diseases (including migraine) are selected to fill out further disease-specific modules. The NHWS data have been previously used to describe the burden of various diseases in the US and Europe.

The primary objective of the study was to characterize the incremental burden of migraine from the European patients' perspective according to frequency of migraine, with burden measured by the decrements in HRQoL non-migraine survey respondents. Secondary objectives were to characterize the incremental burden of migraine as measured by work productivity impairment, impairment to non-work activities, and healthcare resource use (HREU), with these outcomes compared to non-migraine survey respondents.

Methods

A retrospective, cross-sectional analysis was conducted using responses from the 2016 NHWS in France, Germany, Italy, Spain, and the UK (SUE) retained from the NHWS database provided by Kantar Health. NHWS respondents are members of MySurvey.com or its partners, which are opt-in panels.

- Responses from 80,600 adult NHWS respondents who had completed the survey in 2016 were included in the analysis. Out of the 16,340 respondents who reported to have experienced migraine in the past 12 months, a randomly selected subsample (80%) of 12,680 completed respondents the migraine module with additional questions on migraine characteristics (n=777) with a physician diagnosis, see Figure 1. This design allows for a representative subsample of migraine to examine primary and secondary outcomes while limiting the average length of interview and respondent burden.
- In Spain and Italy, where internet penetration among the elderly was considered sufficient to sample a representative sample of the elderly, telephone recruitment using quota sampling (age and gender) was used, while those without access to the internet were invited to complete the survey using a computer in a private center.
- All variables associated with health outcomes collected through self-report. These include sociodemographic characteristics (age, gender, country, marital status, employment status, education level, income, household composition, body mass index, smoking, alcohol use), comorbidities (Charlson score), psychological impact (SF-36v2 Mental Component Summary score (MCS), SF-6D health utility score), disease-specific outcome measures (Migraine-Specific Activity Impairment, Activity Impairment, and Resource Utilization Module (MAIRUM) (EM and CM), Migraine Disability Assessment-21 (MIDAS-21) (EM and CM), Migraine Specific Component Score (MSCS)), and summary indexes (EQ-5D Index and SF-6D).

Results

- Migraine-diagnosed patients categorized in 4-7 EM (n=106) vs. 8-14 EM (n=40) vs. matched cases of non-experiencing (n=218) were compared on demographic characteristics, age and CCI score, health history, migraine characteristics, health outcomes and resource utilization. All statistical differences observed were balanced using propensity score matching. Demographic characteristics of the study sample after propensity-score matched analysis are shown in Table 1.

- Patients with migraine reported significantly lower HRQoL compared to non-migraine controls. The study demonstrated that there is a statistically significant incremental impact of migraine on overall health-related quality of life (Figures 3 and 4). The SF-6D health utility score and EQ-5D index were significantly lower in migraine patients compared to those without migraine (4.37 vs 0.34, respectively). The rate of emergency room visits was significantly higher in migraine patients than those without migraine (3.6% vs 0.4%, respectively).

- Overall work impairment was measured by combining absenteeism and presenteeism to determine the total percentage of missed time (Figure 5). Overall work productivity loss for migraine patients was significantly higher than those without migraine (43.7% vs 9.2%, respectively). Total activity impairment was more prominent and showed negative impact due to migraine. Mean activity impairment burden in CM was significantly higher than those without migraine (44.1% vs 7.7%, respectively).

- HRU was shown to be higher in migraine responders when compared to those without migraine. This means that HCP visits in months 1-6 was significantly higher for migraine patients than those without migraine (8.5 vs 5.1, respectively). The rate of emergency room visits was significantly higher for migraine patients than those without migraine (2.6% vs 0.4%, respectively).

- The study demonstrated that there is a statistically significant incremental burden due to migraine on quality of life (mental, physical, and health status), HRU and work productivity (both presenteeism and absenteeism) among the migraineurs in comparison to matched controls in the EU5.

References

5. Asztalos BF et al. JAMA Neurol. 2010;67:1076-1080. [Early access by email]

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Figure 1. Selection of study population from the 2016 NHWS in the EU5

Figure 2. Mental and physical component summary score of SF-36 among non-migraine vs. migraine respondents

Figure 3. SF-6D health utility score and EQ-5D index among non-migraine vs. migraine respondents

Figure 5. Total work productivity and activity impairment in migraine respondents vs. matched controls

Figure 4. Absenteeism and presenteeism in migraine patients vs. non-migraine controls as measured by the WPAI

Table 1. Demographic characteristics post match analysis for migraine respondents (overall and by migraine frequency) and non-migraine controls

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-migraine</th>
<th>4-7 EM</th>
<th>8-14 EM</th>
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<tbody>
<tr>
<td>Gender (male)</td>
<td>4210 (33%)</td>
<td>217 (54%)</td>
<td>154 (10%)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>41 (27.2)</td>
<td>41 (27.2)</td>
<td>41 (27.2)</td>
</tr>
<tr>
<td>Employment status (employed)</td>
<td>76 (29.3)</td>
<td>41 (28.6)</td>
<td>35 (23.1)</td>
</tr>
<tr>
<td>Charlson comorbidity index</td>
<td>74 (27.5)</td>
<td>41 (28.6)</td>
<td>35 (23.1)</td>
</tr>
<tr>
<td>SF-36v2 Mental Component Summary score (MCS)</td>
<td>46 (60.8)</td>
<td>44 (60.8)</td>
<td>44 (60.8)</td>
</tr>
<tr>
<td>SF-6D</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
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</tbody>
</table>

Conclusion

This study demonstrated that there is a statistically significant incremental burden due to migraine on QoL (mental, physical, and health status), HRU, and work productivity (both presenteeism and absenteeism) amongst the migraineurs in comparison to matched controls in the EU5.

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