



Validation and Clinical Utilization of Headache Information Diary (HID) among Subjects with Cervicogenic Headache

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KEYWORDS

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ABSTRACT:

Introduction: Around 95% of the general population have experienced headache at some stage in their life with 1-year prevalence of nearly one in two adults worldwide. The IHS has validated cervicogenic headache as a secondary headache that is hypothesized to originate due to nociception in the cervical area.

Objectives: The aim of this research is to develop a Headache Information Diary for evaluation of subjects with cervicogenic headache, and to analyse the clinical application of this tool among subjects with Cervicogenic headache.

Methods: A delphi method was adopted for this research, and was performed in two phases. In phase 1, the cognitive, psychological and social domains are used to develop a diary with help of the details collected from patients through formal interviews. In phase 2, the validation of the tool was done by experts in the field neurology, focussed on content validity analysis. The cognitive interview conducted with help of this tool found minimal assessment error and minimal detectable change.

Results: The final tool, Headache Information Diary, addressed headache frequency, disability, medication use and effect, patients' perceptions of headache "control", and their understanding of their diagnoses. The literature review found few instruments linking assessment to clinical advice or suggested actions, Headache Information Diary appeared to fill this gap.

Conclusions: With demonstrated validity and clinical utility on Headache Information Diary in cervicogenic headache, we suggest this tool for clinical and research purposes in patient populations suffering with headache.

1. Introduction

Nowadays people spend their most of the time, commencing from education to entertainment in front of the computer sitting for a prolonged time in poor posture which leads to muscular imbalances, joint stiffness that further results in increased tension and pain in the neck muscles.^{1,2} In pathological conditions like described, the proprioceptive input distorts the direct linear interaction between neck proprioception and vestibular information that results in subjective body orientation and spatial psychological representation, which is manifested as dizziness or subjective unstable perception.³

From the previous evidences collected, it has been identified that there exists almost a 20000-assessment format or tools developed in past five years, still the complete assessment that include all the fields of headache remains the query. Headache Information Diary holds a good tool for assessment of various aspects of headache. This diary includes the demographic details of subjects, tables for documenting the duration, frequency, intensity, trigger factors, associated problems, sleeping pattern, food practices, working environment. This also has table of monthly chart for recording the frequency of headache throughout the month. The Headache Information Diary assess not only the occurrence of headache but also its impact on quality



of life. It holds its significance in clinical utilization as it assesses both the retrospective (triggering factors, work environment, food factors) and prospectively (as its occurrence throughout the month is recorded). This study focused on validating and utilization of Headache Information diary in clinical setup.

2. Objectives

The aim of this research is to develop a Headache Information Diary for evaluation of subjects with cervicogenic headache, and to analyse the clinical application of this tool among subjects with Cervicogenic headache.

3. Methods

This study uses a Delphi method for the validation of Headache Information Diary. The Delphi method is a forecasting process and structured communication framework based on the results of multiple rounds of questionnaires sent to a panel of experts. After each round of questionnaires, the experts are presented with an aggregated summary of the last round, allowing each expert to adjust their answers according to the group response. This process combines the benefits of expert analysis with elements of the wisdom of crowds. Several rounds of questionnaires are sent out to the group of experts, and the anonymous responses are aggregated and shared with the group after each round. The experts are allowed to adjust their answers in subsequent rounds, based on how they interpret the “group response” that has been provided to them. Since multiple rounds of questions are asked and the panel is told what the group thinks as a whole, the Delphi method seeks to reach the correct response through consensus. The process of Delphi method is that initially the group facilitator selects a group of experts based on the topic being examined. Once all participants are confirmed, each member of the group is sent a questionnaire with instructions to comment on each topic based on their personal opinion, experience, or previous research. The questionnaires are returned to the facilitator, who groups the comments and prepares copies of the information. A copy of the compiled comments is sent to each participant, along with the opportunity to comment further. At the end of each comment session, all questionnaires are returned to the facilitator, who decides if another round is necessary or if the results are ready for publishing. The questionnaire rounds can be repeated

as many times as necessary to achieve a general sense of consensus.

4. Results

In this study the Headache Information Diary were given to 30 patients. After completing the diary, the patients undergone several treatment strategies and post assessment the diary shows improvement in symptoms. The experts comment suggested that the diary holds the answers to the questions such as causes, triggering factors. Those questions resulted in an opt management which was also individualized based on the causative factor and environment which they live. This scale has been validated by clinical expertise who are experts in the field of headache assessment and treatment for past decades. The results showed that this Headache Information Diary holds good validity and clinical utilization for headache. The tool (Figure 1) received copyright under Department of Promotion of Industry and Internal Trade, Government of India (L-153787/2024)

Figure 1. Headache Information Diary

5. Discussion

The Headache Information Diary holds a very good tool for both assessment and treatment of subjects with headache. The tool will also cater the needs of researchers in this field to quantify and document the baseline and prognosis of the patients with various interventions. Various literatures also support the use of similar tools in the evaluation of headaches.

Casteren et al., conducted a study on the effectiveness of e-diary in clinical headache practice.4 Their prospective observational study concluded that the e-diary including



algorithms differentiating headache and migraine days showed usefulness in diagnosing migraine. They emphasised the need for E-diaries to obtain reliable information, as patients do not reliably recall numbers of migraine days and acute medication intake. Adding e-diaries will be helpful in future headache telemedicine.

Miller et al., conducted a study comparing prospective headache diary and retrospective four-week headache questionnaire over 20 weeks.⁵ Secondary data analysis from this trial concluded that over time, the concordance between headache days reported in these two measures tended to increase; however, the recall questionnaire headache estimates were lower than the diary measures in all four periods. When analysis was restricted to headaches lasting 8 hours or more, the number of headache days was more closely aligned with days reported in the recall questionnaire, indicating that the accuracy of recall estimates is likely to be influenced by headache duration. Restriction of analyses to moderate-to-severe headaches did not change results as much as headache duration. The findings indicate that recall questionnaires administered on a monthly basis may underestimate headache frequency and therefore should not be used interchangeably with headache diaries.

Considering these factors, the proposed Headache Information Diary holds a very good tool for the clinical use in subjects with headache. This Diary provides the subject for their recording of headache information which makes them repeated awareness of frequency and trigger factor. This feedback gains the subject motivated towards the proper approach of treatment and follow up.

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