

PURPOSE

The aim of this study is to describe the efficacy of an interdisciplinary approach, including neurology, occupational therapy (OT) and physical therapy (PT) interventions for people living with headache disorders on pain, quality of life, function, and self-efficacy, in order to increase understanding of recommendations (i.e., team member roles, frequency, duration of treatment) for the best structure of an integrated interdisciplinary care team.

BACKGROUND

Headache disorders are amongst the most common disorders of the nervous system, affecting as high as 50% of the global population.¹ Clinical practice guidelines recommend the use of a multidisciplinary or interdisciplinary team approach for improved treatment and cost effectiveness.² A comprehensive approach that uses both pharmacological and non-pharmacological interventions with focus on self-management strategies including lifestyle modification and trigger identification is recommended.³ To achieve this comprehensive approach, a multidisciplinary team that includes any or all of the following healthcare professionals (i.e., psychotherapist, PT, OT, nurse, pharmacist, and acupuncturist) is recommended compared to pharmacotherapy alone.⁴ Research has also demonstrated the effectiveness of using a team approach for reducing the frequency and improving quality of life of individuals with headache disorder.⁵⁻⁸

Despite these recommendations and evidence, there is inconsistency and lack of clarity regarding which disciplines are necessary providers amongst a team or the optimal treatment duration to achieve clinical effectiveness.⁹ One article by Sahai-Srivastava et al. published in 2017 nicely summarizes the structure and roles of a multidisciplinary team for chronic headache. This article informed our study and structure of an interdisciplinary team approach and included neurology, OT and PT as key members of the clinical team.

METHODS

A retrospective review of clinical outcome data of patients receiving treatment between 2010 and 2019 was conducted at the USC Keck Medical Center, and was approved by IRB (ref. number HS-19-00214). The study sample included patients who were initially evaluated by a neurologist at the USC Headache and Neuralgia Center and referred to OT and PT if appropriate. Table 1 explains the different roles, treatment frequency and duration of each discipline. Table 2 explains the inclusion and exclusion criteria as well as demographic data of patients included in the study.

Clinical outcome measures were administered to patients at the OT evaluation and discharge session. Outcome measures used to assess patient progress before and after interdisciplinary team treatment are listed in Table 3.¹⁰⁻¹³ Statistical analyses were performed using STATA/IC version 14.2 or higher. All statistical tests were 2-sided and performed at the 5% significance level and any interval estimations were 2-sided 95% confidence intervals(CIs) if applicable.¹⁴

Table 1: Interdisciplinary team roles and treatment frequency

Provider	Treatment Interventions	Frequency & Duration
Neurology	<ul style="list-style-type: none"> Conduct initial evaluation and diagnostic testing Medication management and interventional approaches Refer to OT and PT as needed 	<ul style="list-style-type: none"> 1x every 1-3 months 30-60 minute sessions
OT	<ul style="list-style-type: none"> Evaluate the impact of headache disorders on functional participation in ADLs and IADLs as well as quality of life, using a whole-person (physical, cognitive, emotional) lens.¹⁵ Improve self-management skills through the assessment and treatment of the following lifestyle areas using a Lifestyle Redesign[®] approach¹⁶: <ul style="list-style-type: none"> Trigger ID and pain tracking Health-management routines (i.e., eating/exercise/sleep routines/medication) Stress and anxiety management Ergonomics/body mechanics Energy management Community and work reintegration 	<ul style="list-style-type: none"> 1x/week for average of 7-8 sessions 45- 60 minute sessions
PT	<ul style="list-style-type: none"> Assist patients to restore, improve, and maintain movement in order to improve their ability to engage in daily activities.¹⁷ Assess physical function, including postural dysfunction, musculoskeletal abnormalities, and strength impairments. 	<ul style="list-style-type: none"> 1-2x/week for average of 6-12 sessions 30-60 minute sessions

Table 2: Inclusion/exclusion criteria and demographic data

Inclusion criteria	<ol style="list-style-type: none"> 1. Patients seen at the USC Headache and Neuralgia Center and USC OT and PT Faculty Practices between 2010 and 2019 2. Headache disorder diagnosis 3. Participated in neurology, OT and PT treatment 4. Completed pre- and post- outcome data
Exclusion criteria	<ol style="list-style-type: none"> 1. Only seen by 1 discipline 2. Did not complete pre or post outcome data
Demographics	N=97 Female: 78 Male: 19

Table 3: Outcome measures

Headache Impact Test-6 (HIT-6)	<ul style="list-style-type: none"> • Lower scores indicate lower impact of headache pain on daily life • A decrease in score between 2.3 and 6 points is considered to be the minimally important change
Headache Management Self-Efficacy Scale (HMSE)	<ul style="list-style-type: none"> • Higher scores indicate improved confidence in the ability to prevent and manage headache pain • Standards for minimal clinically important differences for this measure have not been determined
Canadian Occupational Performance Measure (COPM)	<ul style="list-style-type: none"> • Higher scores indicate increase perceived performance ability and satisfaction in patient-identified areas of occupational difficulty • A 2-point improvement or more is considered clinically significant

RESULTS

Our sample of 97 patients who met the inclusion criteria had a mean age of 38 years old and was predominantly female (80%) and white (80%). Mean changes, standard deviation and P-values are demonstrated in Table 4. Our results demonstrated significant improvements in measures of quality of life and self-efficacy with the team approach in headache patients when comparing pre-treatment HMSE, HIT-6, COPM (performance), and COPM (satisfaction) scores to post-treatment scores.

Table 4: Clinical outcomes

	N	Mean change	SD	P-value
HMSE	23	27.12	33.92	<0.001
HIT-6	44	-8.32	7.77	<0.001
COPM (performance)	42	2.99	1.40	<0.001
COPM (satisfaction)	42	3.42	1.68	<0.001

DISCUSSION

This retrospective study reports on changes in outcome measures from time of evaluation to discharge of 97 patients who were involved in interdisciplinary team care including neurology, OT and PT. This is the only study of its kind that reports on the use and results of interdisciplinary team care with these three disciplines specifically. The results of this study indicate that interdisciplinary teams that include OT and PT can lead to significant improvements in the management of headache disorders, including quality of life and self-efficacy. These findings support the development of interdisciplinary teams that include these 3 disciplines specifically.

While these results demonstrate improvements with the use of interdisciplinary team care, this study included a small sample size and a larger sample would be recommended for future studies. Additionally, without a comparison group, we cannot determine if these improvements would have been the same without any intervention at all or with only 1 or 2 disciplines, rather than all 3. A future prospective clinical study that includes a control group and treatment groups receiving 1, 2 or all 3 discipline interventions is needed to evaluate the clinical effectiveness of interdisciplinary care.

CONCLUSION

For patients with headache disorders, interdisciplinary team care including neurology, OT and PT results in clinically significant improvements in quality of life, functional impact of headache, and self-efficacy in managing headaches. These results are likely due to the comprehensive treatment approach of the interdisciplinary team to address the biopsychosocial needs of the patients as well as the distinct value and role of each discipline. Amongst the team, neurologists should be responsible for the evaluation, pharmacological and interventional treatment as well as recognizing the need for referrals to interdisciplinary team members. OTs should be responsible for addressing the lifestyle-based treatments for improving headache pain and increasing participation in ADLs, IADLs and community activities. PTs should take on the role of addressing the physical, postural and musculoskeletal components contributing to headache disorders. This study helps to justify the need for the development of an interdisciplinary team where healthcare providers can address the complex needs of this population and could be used to recommend the addition of OTs and PTs in clinical settings where patients with headache disorders are being treated. The methods can also be used to inform the appropriate frequency and duration of treatment needed to achieve clinically significant outcomes. This research can also be utilized to advocate for and promote the use of interdisciplinary teams to insurance payers, as the results demonstrate improvements in patient outcomes. Further studies comparing the use of an interdisciplinary team approach with pharmacological and traditional treatment approaches alone should be done to confirm these findings.

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