REVIEW ARTICLE

Attitudes towards an Online Hypnosis Intervention for Migraine

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ABSTRACT

This study performed a retrospective analysis of participants' feelings towards their migraines during a 6-week online hypnosis intervention. The initial intervention was a randomized controlled trial (RCT) involving 43 participants. It examined the development and evaluation of an online hypnosis programme for the treatment of migraine. In the treatment group there was a 48% reduction in mean Headache Disability Index (HDI) score and a 60% reduction in mean Pain Catastrophizing Score (PCS) demonstrating that an online hypnosis intervention is effective in reducing headache symptoms in migraine sufferers. On completion of the RCT a subset of 14 participants from the treatment group were interviewed and filled out a questionnaire. Common themes were identified from their responses. Relaxation was identified as an important element in controlling migraines, with 65% of participants feeling more relaxed after listening to the mp3s. They also noted a change in thought patterns with a shift away from controlling or stopping migraines to managing migraines. This study has demonstrated for the first time that hypnosis delivered online is an effective method for altering participants' thoughts towards their migraines, enabling them to feel more in control and able to manage their migraines.

1. Introduction:

Migraines affect approximately 15% of the population[1] with symptoms varying between individuals and attacks lasting from 4 hours up to 72 hours[2] Migraines have a significant impact on sufferers' quality of life (QoL), which has led to the world health organisation (WHO) classing migraine one of the top causes of disability worldwide[3]. During the past century, interest in the use of hypnosis for

chronic pain disorders has been growing and many studies have been conducted to investigate the use of hypnosis for chronic pain syndromes. It has been suggested that hypnotic suggestions have the capacity to influence disability and pain catastrophizing in multiple ways.

These include modulating pain generation, secondary neurons sensitisation and endocrine immune responses[4] altering pain perception[5] and modifying emotional responses[6]. Most literature to date has focused on proving the efficacy of hypnosis in alleviating pain and the potential physiological mechanism of hypnotic analgesia.[7,8,9] More recently, the neurophysiological processes occurring as a result of hypnosis and hypnotic analgesia have been investigated and brain imaging has provided evidence of the physiological changes which correspond to specific hypnotic suggestions.[6]

While the clinical and cost effectiveness of face-to-face hypnosis interventions for the treatment of chronic pain has been well documented,[10,11] the concept of hypnosis delivered online specifically for migraine is novel. There is also limited research documenting the phenomenological experience of individuals who receive hypnotherapy treatment for chronic pain, therefore it is important to conduct phenomenological investigations as a means to evaluate thought processes before and after a hypnosis intervention. This information can then be used to facilitate a platform from which future scripts could be written for migraine populations so that maximum benefit in terms of reducing losses in functional ability can be achieved.

This study performed a retrospective analysis of participant's feelings towards their migraines during a six-week online hypnosis intervention. The objectives were

- To examine the experiences and thought processes of individuals participating in the intervention.
- To understand the changes participants noticed on a behavioural and cognitive level in their day to day interactions.

2. Methods: This study conducted a qualitative retrospective analysis of a randomised controlled trial (RCT) investigating the impact of an hypnotic intervention on migraine symptoms. Full details of the intervention protocol are reported in an unpublished PhD thesis. The study was developed according to guidelines from the Medical Research Council (MRC) Framework for Evaluation of Complex Interventions.[12]

2.1 Trial design: Methodology was developed based on the constant comparative method (CCM)[13] which involves listing units of information from the data and allocating these units to categories. The categories are subsequently refined with an end goal of refining emerging concepts.

On completion of the initial six-week intervention, 14 participants from the intervention group undertook an individual semi-structured interview either in person (n=8) or over the phone (n=6). There were ten questions in total addressing what it was like listening to the MP3s, how participants might use an online platform differently and what would give them incentive to use the

MP3s regularly. Concepts related to headache disability and pain catastrophizing were incorporated into the questions (Appendix 1). Some questions were designed to probe further into the questionnaires used for the quantitative data analysis, namely Headache Disability Index (HDI) and Pain Catastrophizing (PCS). A final section of the interview included an open-ended question to give participants an opportunity to express their subjective opinion and discuss any matters they thought were relevant.

Relevant categories were identified and codes were subsequently assigned to the different categories. The themes which emerged from identified categories were named to reflect the content. Sub-themes were identified to facilitate greater insight into qualitative factors such as attitudes, beliefs and unexpected outcomes of the intervention.

2.2 Data collection and analysis: Participants were interviewed in order to record their experiences and the interviews were broken down into units.[14] Some units were set out by the researcher for the purpose of uncovering more information with respect to specific aspects of the study. Other units arose as a consequence of natural discourse, allowing the participants to voice issues and experiences which were important to them. Once recorded, the interviews were transcribed verbatim, imported and analysed using NVivo Version 10 software (NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 10, 2012). A self-audit was carried out in order to test and validate the findings, which included cross referencing with demographic data, literature and observations.

2.3 Ethics: Ethical approval was gained from The Galway Clinic and the National University of Ireland, indicating that the study did meet with recognised ethical standards for research involving human participants.

3. Results:

3.1 Category development: An initial thirty-seven codes were generated from the data which were then broken down into six categories and subsequently developed into three themes. The three themes reflected participants' experiences and feelings towards the impact migraines have on their daily activities, changes in thought patterns, emotional impact and thoughts on future research in this area (Figure 1a).

Theme 1: Emotional Impact: Within the emotional impact theme, disability in terms of emotional and functional ability due to migraine was analysed (Figure 1b).

Impact on emotions

The intervention had a positive impact on participants' emotions with twenty references being made from eleven participants. Reference to improved relaxation and reduced stress were most frequently mentioned with sixteen references being made by ten participants. All fourteen individuals discussed the impact migraines had on their relationships and how the intervention had helped improve these relationships. Ten people noted a positive impact on communications with work colleagues, family members and, in social situations.

Changes in activity

Thirteen participants reported an increase in activity levels during the intervention and nine participants noticed an increase in activity level following completion of the intervention. Of these, four participants felt they socialised more during the intervention, three found their work benefited while two people found that they felt more relaxed and more positive during the intervention. Those who noticed an improvement in activity associated this with experiencing fewer migraines or that their thinking around migraines had altered. The five participants who reported no change in activity during the intervention said that they never allow their migraines to interfere with activities so did not find this relevant to them.

Impact on relationships

Thirteen participants were conscious of mood changes during migraine attacks and they reflected on how this impacted those around them. One participant felt the intervention had *a positive effect on the people around* them while another reported that others had *commented on the changes they noticed following the intervention*. Other participants became more aware of the impact their mood changes must have had on family members with one participant reporting feeling more pleasant and a little less impatient following the intervention.

Theme 2: Cognitive Changes: Changes in thought processes were mentioned twenty-three times by eleven participants. Of the three who did not mention specific changes in their thought patterns, their emphasis centred around an increase in activities. Twelve participants reported a greater feeling of control over their migraines and four participants noticed a reduction in the perceived severity of their migraines following the intervention (Figure 1c).

Thoughts about migraine

Twenty-one references to positive changes in thought patterns regarding migraines were made by eleven participants. Participants felt that suggestions made in the mp3s gave them a greater confidence in dealing with their migraine, a new perspective on the disease and enabled them to think more clearly. One participant observed a dramatic change in their thinking and a move away from thoughts about managing their migraine towards ways to prevent their migraines. Another participant noted that the intervention had stopped them thinking about their migraine at all and following the intervention, they began to think about their migraines differently.

Control over migraine

Thirteen participants felt they were more in control of their migraine with one participant, describing the intervention as '*life-changing*'. Six participants reported that during the intervention their thinking changed and felt they had more control over their migraines rather than simply accepting migraines, while other participants reported a subsequent effect on the way they managed their migraines. The intervention led two participants to question themselves as to whether they were motivated to have a migraine in order to avoid certain situations, a question embedded in the suggestions on one of the hypnosis tracks.

Perceived gravity of the disease

The majority of those interviewed felt that they thought about their migraines less and felt that once they were in a relaxed state their migraine felt easier to bear. Four participants said they were less concerned about the prospect of something serious happening during their migraine attacks as a result of the intervention. The remaining ten participants reported they never had serious concerns about their migraines prior to the intervention which they put down to having an MRI scan, knowing migraines run in their family and patterns of familiarity in their symptoms.

Theme 3; The Participant Voice: Within the participant voice theme seven different categories were identified, these included: what worked, Quality of the mp3s, intervention length, triggers, cognitive changes, unexpected changes as a result of the intervention and migraine frequency and severity (Figure 1d).

What worked

Participants identified relaxation as an important element of the intervention, with nine individuals commenting on the ongoing relaxation they felt following the intervention. Three participants had prior experience with relaxation strategies and were able to differentiate hypnotic techniques used in the intervention from relaxation techniques they had used previously. Another participant noticed a *profound difference* after listening to the third and fourth mp3s in the series, which was attributed to becoming more consciously aware of how to control the migraine. The persistent relaxation which participants experienced was an added, unexpected value for nine participants who stressed that the relaxation lasted beyond the time taken to listen to the mp3s. Of the nine participants who mentioned mental relaxation, three attributed the element of taking time out as being of most value. One participant noted the intervention evoked a release of pressure from daily life while another found it easier to handle increased pressures at work.

Migraine frequency and severity

Twenty-three references were made by thirteen participants regarding the number of migraines they experienced during the intervention. Six participants reported that in the two weeks following the intervention they had had fewer migraines and seven participants reported that they experienced no migraines. One participant noted that they only suffered from migraines at the weekend, but did not experience any during the last two weekends of the study.

Migraine triggers

Three participants identified particular foods which they believed would guarantee a migraine attack and, referring to the mp3 which contained suggestions to make it easier to give up foods which may contribute to their migraines, participants commented on the fact that triggers which previously instigated their migraines no longer did so following the intervention.

Intervention length and Mp3 quality

Ten individuals remarked on the quality of the mp3s or on suggestions in the recordings which resonated with them. Three participants commented on the length

of the intervention, indicating an interest in seeing whether the effects they observed would continue over time. Fifteen statements were made by ten participants referencing experiences which they felt were unusual for them. These included surprise at the profound effect which the hypnosis mp3s had on their physical experience such as *a feeling of floating* while listening to the mp3s.

3.2 Intervention adherence: As part of the intervention, it was required that participants listened to each mp3 three times a week. Of those interviewed, eight listened to the mp3s more than three times a week, two listened to the mp3s less than three times a week and four listened to them three times a week as suggested (Figure 2). One of the participants who listened to the mp3s less frequently still reported a considerable difference in migraine severity, frequency and duration following the intervention.

Two of the participants suggested that a longer intervention would have been preferable in terms of experiencing a greater improvement in their migraine symptoms, while another suggested three months may be beneficial. This suggestion is supported by a steady decrease across HDI scores from the start of the RCT to the six week follow up indicating that a longer intervention duration may have shown further improvements and increased differences between treatment and control groups.

4. Discussion:

While many physicians think of migraine in terms of headache characteristics, associated symptoms and limitations on the duration of the headache, migraine sufferers tend to think of migraines in terms of reduced Qol[15] which they perceive through physical functioning, social functioning, physical perception and role limitations.[16] This makes it important for research into migraine interventions to consider participants' feelings, perceived benefits, functional and emotional impact in addition to quantitative measures such as HDI and PCS. Several themes emerged as being significant to the participants; these include the experience of hypnosis as a relaxation technique, differences in duration and frequency of migraines after the intervention, feedback on the content and delivery of the mp3s and the frequency with which they listened to the mp3s.

4.1 Relaxation: The most profound outcome of this study was the effects participants found on their migraine symptoms due to relaxation. A total of 65% of participants reported feeling more relaxed after listening to the mp3s. Participants also reported a change in the way they viewed relaxation and began to accept that when they had pain it is acceptable to take time out to rest. They also found that listening to the mp3s and experiencing relaxation had a positive impact on their ability to do more on a daily basis. This observation was reflected by a 48% drop in HDI scores for the intervention group during the intervention, demonstrating that the hypnosis mp3s were effective in reducing headache disability.

The findings of this study supports the findings of Jensen and Patterson (2006)[11] who described nine studies which compared the effects of hypnosis with one or more

relaxation interventions including biofeedback-assisted and non-biofeedback assisted relaxation training. They concluded that in a few instances hypnosis was more effective than relaxation training and that it was equally as effective in some instances. They suggested that this may be due to treatments labelled as relaxation, such as autogenic training, may unwittingly contain elements of hypnotic relaxation such as suggestions in the experience of sensations.

The majority of participants in this study perceived hypnosis as a general relaxation technique with the hypnosis mp3s relaxing them beyond the time allocated to listening time. While this is encouraging, it is important for future hypnosis interventions that participants are able to distinguish effects of hypnosis from general relaxation techniques. Participants who were familiar with relaxation techniques prior to the intervention were able to distinguish hypnosis from relaxation and one participant familiar with mindfulness meditation found hypnosis easier to put into practice.

4.2 Improved QoL: Wolff (1937)[17] described migraine sufferers as being hardworking and driven with a tendency to accomplish a considerable amount in a short space of time. The comments made by participants, and the changes in thought processes documented in this study would appear to support this opinion. This analysis has provided evidence that specific suggestions on the mp3s stimulated a new trail of thought for many of the participants. The natural corollary was a change in attitude and in behaviour moving away from pushing to keep going through the pain and a switch in thinking from *putting a stop to migraine* to *managing migraine*. These insights into the cognitive processes may well reflect the underlying constructs which led to changes in feelings of helplessness with respect to the disease. Participants reported an increase in activity following the intervention due to the ways in which they feel about their migraines and being more in control of their symptoms. Participants felt that they became more aware of how their actions and feelings towards their migraines influenced their symptoms and activity levels. The intervention enabled participants to feel more in control of their migraine symptoms. They also felt better able to manage their symptoms, which was reflected by a decrease in medication usage during the 6-week intervention. Mood and emotions have been singled out as important considerations in the treatment of migraine given that migraine sufferers have twice the chance of suffering depression and anxiety[18] making it important to consider participants' emotions and QoL when developing migraine interventions.

4.3 Implications for clinical practice: The study has highlighted that hypnosis can help improve migraine symptoms and influence perceived severity of symptoms. This has implications for future migraine treatment such as reducing medication usage, GP visits and improving QoL for migraine suffers. A reduction in headache symptoms was observed during the intervention with an associated decrease in medication usage through the duration of the study. Despite using less medication participants reported feeling more in control of their migraines

and felt more able to manage their symptoms. These findings would also be expected to reduce the amount of support suffers require from health care professionals. This study suggests that relaxation and hypnotic techniques should be incorporated into standard migraine treatment regimens and that identification of migraine triggers should also be incorporated into standard treatment strategies.

4.4 Implications for future interventions: This study demonstrates the importance of considering participants perceived benefits and feelings towards intervention as well as assessing intervention efficacy through quantitative analysis. The efficacy of migraine interventions is often measured through pain scales such as PCS and HDI and by assessing between group effect sizes. However, effects at an individual level are rarely considered. In this study between group comparisons for the number of migraines and migraine severity were not statically significant, however, participants reported feeling more in control and able to cope with their migraines following the intervention. It is therefore important that future studies of this nature should incorporate a qualitative aspect in the analysis. It is particularly important that the individual effects are also considered, as online health interventions are often determined to be unsuccessful due to small effect sizes which leads to them not been implemented in clinical practice.

Online delivered health interventions offer the advantage that they can target a large number of individuals increasing the reach and overcoming physical barriers. This study supports the finding that contact with healthcare professionals increases adherence and improves outcomes.[19] Participants in this study commented on the fact they were able to contact the researcher with any questions during the study. This is a factor which should be considered in the development of future migraine interventions, whether delivered in person or online.

4.5 Future Research: This study has demonstrated that hypnotic suggestions provided in an online intervention can help reduce migraine symptoms and improve patient's QoL. While the findings of this study have been positive it is necessary to further refine hypnotic suggestions to determine what aspects are most beneficial for migraine suffers and whether mp3s have more of an impact when tailored to specific life situations.

As participants attributed improvements in their health to the effects of relaxation, it would be worthwhile explaining hypnosis in more detail to participants prior to the intervention and explaining that relaxation is often one aspect of hypnosis but that there are many other distinguishing factors. It is important for future research to focus on whether hypnotizability of the participants influenced the outcomes of the intervention or participant's feelings towards the effectiveness of the intervention.

Further work also needs to be done to determine the optimal intervention duration. While this study has shown that a six-week intervention had beneficial effects on pain measure scales, participants suggested that they felt they would have gained more benefit if the intervention was conducted over a longer time period. While this may

be the case, further research would need to be conducted to determine the maximum time over which benefits may be observed and whether there is an optimal time frame for the intervention. As the mp3s were made available to all participants post intervention, it would be interesting to follow-up 12-months post intervention to assess whether participants continued to use the mp3s following the intervention and to assess the long term effects on their migraine symptoms for those who did not continue to use the mp3s.

While the intervention has been successful in reducing headache symptoms in migraine sufferers, an extended study would offer the potential to show whether regular use of hypnosis techniques can be used to prevent migraine attacks.

4.6 Limitations: While the online nature of the intervention enabled participants from different geographical locations to participate in the intervention, the distance proved a challenge following the intervention with respect to meeting participants. As many participants were unable to meet the researcher in person, it was not possible to assess hypnotisability which would have been beneficial in providing further insight into the effect of hypnosis on migraine symptoms.

Due to the absence of hypnotizability data in this study, it was not possible to ascertain whether there was a correlation between PCS scores, participants' feelings towards their migraines and hypnotizability scores. The potential association has not been investigated in the literature to date, and is an important factor to consider when distinguishing the effects of hypnosis from relaxation.

The gender ratio of participants in this study was not reflective of the gender ratio in migraine populations. However, the gender distribution is consistent with the fact that more females than males are migraine sufferers[20] which makes it difficult to recruit equal numbers of males and females to migraine interventions.

5. Conclusion: This study was, to the best of the author's knowledge, the first to conduct a qualitative analysis of a RCT performing an online hypnotic intervention for migraine suffers. The results of this study indicated that hypnosis delivered online was an effective method for reducing headache disability and alters suffers perception of migraines with a shift away from *stopping* to *managing* migraines and has significant implications for the future management of migraine.

Appendix 1

Qualitative Questions

- What was it like listening to the MP3s?
- Did you listen to them more than three times or less than three times any of the weeks?
- Had the mp3s any value outside of the protocol?
- Were there any activities that you found you could do while you were using the mp3s that ordinarily you would not be able to do or chose not to do in the past because of your migraines?

- What impact , if any, did the intervention have on how you feel emotionally (e.g. confusion, irritability) about your migraine?
- Has the intervention had an impact on the way you relate to people around you?
- Do you notice any changes as a result of the intervention in your feelings of control over your migraines?
- Have you found any changes in your thoughts about the discomfort of migraines as a result of the intervention?
- Have you noticed any changes in how you perceive what may happen when you have a migraine?
- Is there anything I have not asked about your experience that you would like to comment on?

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