Critical Review:
Effect of motivational interviewing on mood in stroke survivors with or without aphasia

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People who experience stroke with or without aphasia have a high risk of mood disturbances, such as depression. Motivational interviewing (MI) is an effective talk-based therapy for improving mood. MI strategies have been adapted for stroke survivors with aphasia to improve motivation to adjust to life after stroke. This critical review examines the effect of MI on mood in stroke survivors with or without aphasia. A literature review of electronic databases resulted in five articles that met the inclusion criteria. Study designs include three randomized controlled trials, one case study and one qualitative study. The overall findings suggest that MI has a potential impact on enhancing mood in persons who experience stroke with or without aphasia. A stronger evidence base is required to confirm its effect on mood, especially in the post-stroke aphasia population.

Introduction

Stroke survivors with or without aphasia have a high risk of mood disturbances, such as depression (Hilari, 2011). Post-stroke depression is attributed to poor engagement in therapy, affecting quality of life and survival rates (Gaete & Bogousslavsky, 2008). Motivational interviewing (MI) is an effective talk-based therapy that is client-centered and goal-directed to support psychological and behavioural changes (Miller & Rose, 2009). Core MI principles include therapist empathy and MI spirit (evoking client collaboration, motivation and autonomy); and moving from client sustain talk (ambivalence or reluctance) to change talk (motivation) (Miller & Rose, 2009). Therapists must help clients to develop discrepancies between current behaviours and goals, as well as to acknowledge resistance during the change process in order to evoke client motivation (McFarlane, 2012).

MI was traditionally used for addictions counseling (Center for Substance Abuse Treatment, 1991). Success in this context has allowed MI to spread to a wide array of clinical applications such as stroke. McFarlane (2012) discusses practical strategies for speech-language pathologists (S-LPs) to apply MI to clinical practice using the OARS technique (open questions, affirmations, reflections and summaries). Holland, Watkins, Boaden and Lightbody (2018) have also adapted MI for stroke survivors with aphasia. Despite these existing guidelines, studies have shown that S-LPs are generally uncomfortable when counseling clients without clinical supports (Sekhon et al., 2015; Northcott et al., 2018). Patel (2018) showed that it is feasible to recruit, retain and train health care providers to deliver MI in a stroke setting. Therefore, training of clinicians should be considered to equip them with the clinical tools to counsel clients.

Overall, MI strategies are straightforward to learn and apply for counseling stroke survivors under the condition of quality MI training and/or supervision by a clinical psychologist. This may be ideal in acute care or community settings with supports from an inter-disciplinary team. Application of MI in stroke settings has the potential to improve mood and subsequently therapeutic engagement. However, the evidence must be critically evaluated to inform clinicians of its validity and clinical usefulness.

Objective

The objective of this review is to critically evaluate existing literature regarding the effect of MI on mood in stroke survivors with or without aphasia.

Methods

Search Strategy
A variety of electronic databases, including CINAHL, Google Scholar, PsycINFO, PubMed and Scopus, were searched using the following search terms: (motivational interviewing) AND (mood) OR (depression) OR (motivation) AND (stroke) OR (aphasia). Related articles and reference lists were reviewed as well. The search was limited to articles written in English.

Selection Criteria
Studies selected for inclusion in this review were required to examine MI as the intervention and mood as an outcome in stroke survivors with or without communication deficits such as aphasia. Mood is defined as psychosocial wellbeing, motivation to change and the absence of depressive symptoms.

Data Collection
The literature search results were collected based on the inclusion criteria above, which resulted in the following types of articles: randomized controlled trials (3),

qualitative study (1) and case study (1). All articles except the latter investigated patients in the broader context of stroke without cognitive or communication impairments such as aphasia. The indicated level of evidence was based on Archibald (2009).

Results

Randomized Controlled Trials

Randomized controlled trials (RCTs) provide level I evidence. RCTs are the "gold standard" in testing the effectiveness of an intervention (MI) on an outcome (mood) by comparing the intervention and control groups. Therefore, this study design is appropriate for investigating the objective of this review paper.

In a series of studies, Watkins et al. completed a RCT to examine the effects of MI on patients' mood at 3- months post-stroke (2007) and 12-months post-stroke (2011) as compared to usual stroke care. Hospitalized acute stroke patients (18 years or older; no cognitive or communication impairment) were randomized to a control group (n=207) receiving usual care or an intervention (n=204) group additionally receiving four weekly MI sessions (30 to 60 minutes each) administered by a trained therapist. Outcome measures included a validated measure of mood (low or normal), depression (often feeling sad or depressed), function, and recovery beliefs and expectations, of which the first two are relevant to this review and were completed at 3- and 12- months follow up.

Appropriate statistical analyses revealed significantly higher likelihood of normal mood, and not feeling sad or depressed, in the intervention than control groups at 3-months follow up. MI remained protective of a normal mood at 12- months follow up, but not for depression as it did at the 3-month mark.

Strengths of the study included an appropriate sample size, use of blinding procedures during data input and analysis, validated outcome measures, and the application of an intention-to-treat principle. Limitations included the use of self-rating measures, and the amount of training required for therapists.

Overall, this study provides highly suggestive evidence that MI improves normal mood in acute stroke patients who do not have cognitive or communication impairments.

Kerr, McCann, Mackey and Wijeratne (2018) conducted a pilot RCT to primarily examine the feasibility of MI during hospitalization and to secondarily invesitgate the effects of MI on mood as defined by depressive symptoms (anxiety, depression and quality of life) to support adjustment after stroke at baseline, 1-month and 3- months follow up. Researchers randomized 48 adult patients without severe cognitive and communication deficits into the intervention and control groups. Participants in the intervention group received three MI sessions, each lasting 30 minutes while in hospital. MI was conducted by facilitators with a nursing or social work background having completed accredited training. Participants in the control group received usual care by the interdisciplinary stroke team. Outcome measures included anxiety, depression and quality of life, which were measured by psychometrically sound tools at the three points in time. Results based on descriptive statistics alone showed that anxiety and depression did not change signficantly from baseline at 1- and 3- months follow up.

Strengths of the study included baseline matching on a variety of characteristics (sex, age, language, marital status, geographic location born and dependency status), detailed description of procedures, fidelity checks on intervention, Limitations included recruitment based on convenience via referral, lack of statistical analysis

Overall, this study provides equivocal evidence on the impact of MI on mood.

Qualitative Study

A qualitative study provides level IV evidence but allows valuable insight into how MI affects mood. Therefore, this study design is appropriate for investigating the objective of this review paper.

Auton et al. (2016) conducted a qualitative study to analyse MI transcripts of 10 stroke survivors who had participated in a previous study (Watkins et al., 2007; 2011) to understand their concerns and adjustment after stroke. Of a possible 639 voice files, 137 were randomly selected to be transcribed to, and of 22 complete sets, ten were selected on the basis of maximum diversity of sampling variables: interviewing therapists, patients' ages (younger or older than 65), sex, severity of stroke and functional impairment, and depression status (low or normal mood). Appropriate thematical analysis revealed that the stroke survivors raised an average of six concerns per session (getting well, frustration, family impact, reasons for stroke, not fully back as before and fear of another stroke). Once the problems were identified, MI targeted discourse from sustain talk (ambivalence) to change talk (intention to change) over the four sessions. Results showed a steady decrease in sustain talk and increase in change talk from session one to four.

Strengths of this study included adequate training for interventionists, detailed description of data coding, and acceptable coding reliability. Limitations included the small sample size and potential lack of generalizability due to the exclusion of those with severe cognitive or communication impairments such as aphasia.

Overall, this study provides suggestive evidence that mood increases following MI.

Case study

A case study provides level IV evidence. Although case studies tend to be biased, they are necessary for studying topics that are rare or less known. Typically, persons with communicative difficulties such as aphasia are excluded from interventions with talk-based therapies such as MI. Therefore, a case study is appropriate for investigating the effect of MI on mood in a stroke survivor with aphasia.

Hersh, Newitt and Barnett (2018) conducted a case study of a 61-year-old woman with a complex medical history who experienced a left middle cerebral artery stroke six years prior to the study that resulted in a moderate-to-severe, non-fluent aphasia. The participant was involved in a lifestyle intervention program based on MI principles with adaptations for physical and communication impairments facilitated by an exercise physiologist (EP) and S-LP. Outcome measures included attitude change, attendance and exercise measures (frequency, intensity, time and type) were completed at 15 weeks, of which the first two outcomes are relevant to this current review. Attitude change indicated a change in mood and behaviour. Results showed that the participant transitioned from sustain talk (ambivalence) to change talk (motivation to attend gym sessions) over 15 weeks, which translated to regular attendance in the program.

Strengths of this study included the use of MI techniques and adaptations that are broadly applicable, and triangulation of data sources. Limitations included the case study design.

Overall, this study provides suggestive evidence that MI can lead to increased mood in a post-stroke patient with chronic aphasia.

Discussion

A critical review of the existing literature revealed that MI has a potential effect on enhancing mood of stroke survivors with or without aphasia. Overall, five papers were reviewed, of which three reported suggestive to highly suggestive evidence that MI leads to better mood in post-stroke patients without cognitive or communication impairments. One pilot RCT study provided equivocal evidence of no impact due to limitations in the data analyses. Lastly, a single case study provided suggestive evidence of a positive impact in a patient with post-stroke aphasia.

None of the papers addressed the underlying reasons of how MI impacts mood directly, except for Auton et al. (2016). Some indication of how mood increases after MI is the initial identification of patients' major concerns and targeting them with change discourse. However, this review paper was unable to include this as an objective due to limited studies in the literature.

One reason to be cautious in the interpretation of the findings of this review is that all five papers used different outcome measures for mood because mood is not universally defined. For example, Watkins et al. (2007) defined mood as psychosocial wellbeing instead of depression and that allowed them to find a significant difference in normal mood at 12- months follow up. If they used depression as an indicator for mood, then there would be no significant difference at the same time to follow up. Kerr et al. (2018) measured mood based on depressive symptoms and they also found no significant difference. Therefore, results may vary depending on how authors defined mood.

Another reason to be cautious of the results is that three of the five articles used the same participants in their sample population (Auton, et al., 2016; Watkins, et al., 2007; 2011). This redundancy in the sample population limits the strength of evidence.

A majority of studies in this paper were conducted in hospital, limiting the generalizability to the acute care setting, although both Watkins et al. (2007; 2011) studies performed MI sessions at home and the Hersh et al. (2018) case study was conducted in the community setting. As a result, it shows that MI techniques have a potential impact outside of acute care settings.

The positive effects of MI on mood as shown in both Watkin et al. (2007; 2011) and Auton et al. (2016) studies were dependent on several factors: early intervention of MI (within 6 weeks of being admitted to hospital), intensive training and supervision of therapists, and higher frequency and duration of MI sessions (one to four sessions, each lasting 30 to 60 minutes). Similarly, the frequency of MI-based therapy in the Hersh et al. (2018) case study was intensive at a frequency of 3 times a week for 15 weeks. Researchers in that study also collaborated with a S-LP who was familiar enough with MI to make adaptations for post-stroke aphasia, suggesting expertise in MI. In comparison, Kerr et al. (2018) had therapists who were not as well trained and not supervised by a clinical psychologist or expert in MI. Therapists in this study also offered a lower number of sessions that were of shorter duration, which may result in no significant changes in mood outcomes.

Overall, this critical review paper demonstrates that there is a a potential impact of MI on enhancing mood in stroke survivors with or without aphasia. The potential mechanism of how MI impacts mood is through the absence of mood disruptors, which are eliminated by identifying concerns and motivating patients to talk about changes. The interpretation of these findings must be considered in light of the strengths and weaknesses of the study design, methodology, and data analysis.

Clinical Implications

The evidence to date remains too limited to guide practice. Nevertheless, MI has some potential to improve mood in post-stroke patients and is possibly applicable to patients with aphasia. Clinicians would need to use this approach cautiously, with adequate training, and with appropriate measures in place to monitor clearly defined individual outcomes.

Next steps are to implement more level I evidences to strengthen the association of MI on mood in stroke survivors with aphasia. It is recommended that a practical manual be developed to guide MI training and supervision for clinicians who are interested in implementing MI as a counseling approach in stroke settings.

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