A critical appraisal of "Combined Exercise and Motivation Program: Effect on the Compliance and Level of Disability of Patients with Chronic Low Back Pain: A Randomized Controlled Trial"

By

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Abstract

Researchers and clinicians agree that therapeutic exercise is a critical tool in decreasing pain and disability. It is particularly difficult however, to motivate patients to complete an exercise treatment program even if they know that it is the best course to reducing pain and disability levels. The study to be appraised focused on specific ways to increase patients' motivation and compliance and if this affected their pain and disability.

This article was greatly strengthened by its design and sample size. The 93-subject, prospective, double-blind, RCT made it possible for the results of the article to be easily applicable in any clinic. The authors were well-read on previous relevant material and cited primary sources from reputable journals made some particularly interesting points about teaching patients about their "internal locus of control".

However, the article was weakened by in the treatment group, some "tailoring" of the exercise programs was allowed, which may have led to different treatments between groups. Most of the outcome measures used are subjective questionnaires answered by the patients, which may have introduced a significant amount of bias. Also, the authors neglected to explain the clinical significance of these outcome measures. There was no attempt to give a MCID or NNT that would have helped the reader be more informed about the significance of this article's findings.
Key words: Motivational intervention, low-back pain, exercise program

Introduction

There is a great amount of evidence and clinician agreement that regular and consistent exercise-based therapy is an important tool in healing chronic low-back pain. Unfortunately, many patients with this condition tend to be only partial to non-compliant to prescribed exercise programs. Researchers hypothesize that one reason for the low level of compliance is that patients are not properly motivated by their clinicians. Therefore, I have decided to appraise this study by Friedrich et. al. which aims to assess whether a specialized motivational program can help increase patient compliance to their exercise program, and if that in turn improves their level of disability.

Methods

During my literature search I used EBSCO/Medline, Google Scholar, and PubMed Central databases using the search words: motivational interviewing, low-back pain. I limited the search to experimental studies with quantitative data to find articles that are most clinically applicable. I had few hits that included motivational strategies and low-back pain; total of 32.

This article was published by the Archives of Physical Medicine and Rehabilitation, in 1998, and was written by M. Friedrich, G. Gittler, Y. Halberstadt, T. Cermak, I. Heiller. This study was conducted in Vienna, Austria. I chose this article because it is a prospective, double-blind, randomized control trial, with a large number of subjects; split nearly evenly male and female. These criteria establish limited bias and a greater magnitude of clinical applicability.

Results

Summary of the study

This experiment studied the effectiveness of using motivational techniques during therapy sessions. This double-blind RCT divided 93 patients into two groups. One group participated in a regular exercise program, while the other group participated in the same exercise program with 5 compliance-enhancing motivational techniques. The results showed that those who participated in the motivational techniques were more likely to come to therapy sessions, had lower disability scores 4&12 months later, less pain, and greater abdominal muscle strength. The researchers concluded that short-term compliance was enhanced and there was significantly reduced disability and pain scores by the 12-month follow-up. However, there was no difference in long-term exercise compliance.

Appraisal of the study introduction

The introduction of this study provides a strong background on the problem of motivating patients to participate in therapy, particularly therapeutic exercise. The researchers provide numerous primary-source research articles to justify the need for their study. The introduction does a particularly nice job at explaining that much of a patient's motivation stems from the psychological influence of the physical therapist, which is the main focus of this study. The objectives of this study are clearly indicated.

The introduction was weakened by failing to explain why they specifically chose to perform this motivation intervention on patients with chronic low-back pain. The researchers could have

included an explanation and provided some researched justification of why they believe that low-back pain effects compliance to an exercise program.

Appraisal of the study methods

The research design for this study is a prospective, longitudinal, double-blind, randomized control trial. This design is optimal for eliminating bias and universal clinical application of the study's results. There was a large subject pool (93) with no statistically relevant differences in their demographics. The large sample size, with minimal differences also implies good application of results to a larger population. The researchers were clear in explaining their motivation intervention, which could be easily replicated.

This study did the best they could to treat both groups of subjects the same, however therapists in the control group were not precluded from using their habitual motivational techniques. Depending on what these techniques were, (whether or not they were similar to the treatment group), may have affected the control group's results. Also, in the treatment group, some "tailoring" of the exercise programs was allowed, which may have led to different treatments between groups. Most of the outcome measures used are subjective questionnaires answered by the patients, which may have introduced a significant amount of bias. More objective measures should have been used. Also, the reliability and validity of the outcome measures were not specifically mentioned within the article.

Appraisal of the study results

The results section was well-organized and clearly written. The results were presented in the same order as the research questions were asked and all outcome measures were reported. Compliance and disability level were given special attention and writing explaining their hypothesis. All tables and figures were presented clearly, accurately and make sense.

The researchers in this article used outcome measures that are not commonly used in the United States, and they neglected to explain the clinical significance of these outcome measures. There was no attempt to give a MCID or NNT that would have helped the reader be more informed about the significance of this article's findings. Also, on figures 1, 2, & 3 the authors should have labeled the x-axis with the amount of time from the start of the study (12w, 4mos, etc) rather than "assessment point #x". This would have made the figures easier to understand.

Appraisal of the study discussion

The discussion of this article was well written and well-organized. The authors made some particularly interesting points about teaching patients about their "internal locus of control". The authors cited current literature from credible journals, many of which were primary sources. The authors were able to recognize the limitations of their study and gave suggestions for further, related studies.

This discussion was too verbose in explaining the difficulty of measuring something "abstract" like motivation. The purpose of the study was not to measure motivation, rather the purpose of the study was to analyze the *effects* of motivation on decreasing LBP and disability. The future studies suggested by the authors were only weakly related to the purpose of this article. The one

good suggestion they did have for future studies was only mentioned in passing rather than giving any detail. The most significant weakness of the discussion was that the authors did not address clinical significance or application of this study.

Discussion

For patients with chronic LBP, pain often decreases their motivation to exercise or attend physical therapy sessions, which prolongs their pain. This can lead to a downward spiral of increased disability and pain over a long period of time. This study shows that using motivational techniques can significantly improve patients' short-term compliance, which leads to decreases in disability and pain long-term. In an effort to promote compliance to therapeutic exercise for patients with low back pain, this experiment studied the effectiveness of using motivational techniques during therapy sessions.

The motivation program used in the treatment group was well thought-out and well designed. Patients were given extensive counseling and information emphasizing the importance of regular exercise. This was reinforced with positive feedback and commendation from the therapists. Also, the use of "treatment contracts" and "exercise journals" posted in a prominent place in the home for daily reminders to exercise. These were excellent strategies to ensure the patients' focus on their "central locus of control" and increase compliance. Some potential risks of using "treatment contracts" may include a feeling of a clinician being too invasive or demanding. This risk could be diminished by establishing good rapport and letting the patient take control of the goal setting. The article also mentions using a monetary reward system, which may not be feasible in most clinics.

Unfortunately, the greatest weakness of this article is that the researchers did not discuss the clinical relevance of their results. Also, the results were almost entirely subjective, introducing subject bias. So, although the research design was well thought-out and the reasoning behind designing the motivation treatment was sound, there was not enough information given regarding the clinical relevance of this study to implement the intervention in the future.

Overall, this article was well written, organized, and well researched. The research design was sound and the intervention was good. However, the researchers should have used more objective outcome measures to determine the effectiveness of the motivational intervention. Researchers definitely should have given more regard to explaining the clinical relevance of their results.