Motivational Interviewing: Improving Confidence With Self-care Management in Postoperative Thoracolumbar Spine Patients

CE 1.0 ANCC Contact Hour

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ABSTRACT

Patients undergoing thoracic or lumbar spine surgery often lack confidence with self-care management of symptoms contributing to disability, such as pain, lack of sleep, depression, and immobility. The purpose of this pilot study was to examine whether a targeted motivational interview, focused on evidence-based recommendations to manage postoperative symptoms related to thoracolumbar spine surgery, would improve patient confidence with self-care management of their symptom-related disability. A quasiexperimental, 1-group, pretest-posttest design was used on a convenience sample of 15 adult surgical spine patients at a large university spine center. Level of disability was measured using the Oswestry Disability Index (ODI). Confidence with self-care management of symptom-related disability was measured using the Health Confidence Index (HCI). Paired samples *t* tests were completed on participants' preintervention and postintervention scores on the HCI and ODI and on each of the 10 items that the ODI questionnaire addresses. The results of the paired samples *t* test on participants' HCI scores showed a statistically significant improvement in participants' confidence with self-care management of symptom-related disability from pretest (mean [SD], 6.73 [2.12]) to posttest (mean [SD], 8.73 [1.43]), conditions: $t_{14} = -3.80$, $P = .002$. Motivational interviewing is a beneficial intervention for health professionals to incorporate into practice to encourage the implementation of various health promoting behaviors that improve confidence with self-care management of symptoms in postoperative thoracolumbar spine patients.

Keywords: health confidence, health promotion, motivational interviewing, self-care management, spine disorders

Adult spine disorders related to degenerative disc disease, osteoarthritis, and osteoporosis are on the rise because of the increasing aging population in the United States.[1,2] Osteopenia, sarcopenia, and spinal vertebrae calcification increase with advancing age contributing to postural changes and muscle rigidity.[2,3] These age-related changes in the spine often contribute to chronic back pain, immobility, loss of sleep, and impaired psychosocial functioning.[3,4] Furthermore, the pain and immobility associated with spine disorders contribute to the development of other comorbidities due to inactivity including but not limited to obesity, hypertension, hyperlipidemia, and gastrointestinal problems.[2,5] More than 100 million adults in the United States experience chronic pain, with low back pain being the most prevalent, contributing to the loss of more than $600 billion annually due to increased healthcare costs and decreased productivity.[6]

Spinal fusion is the most widely used surgical procedure to alleviate back pain associated with degenerative disc disease, but the cost of the procedure is estimated at $12.8 billion in 2011.[7] Moreover, patient outcomes are mixed with spinal fusion because of the chronic nature of the disease process and underlying comorbidities associated with prolonged inactivity.[1,8] For this reason, other treatment modalities should be explored to alleviate disabling symptoms related to spine disorders in place of or in addition to spinal fusion procedures to improve patient outcomes.[1]

In addition, the recent emphasis on value-based care has prompted hospital administrators to shift their attention away from spine surgery programs focused solely on surgical volume to creating more multidisciplinary spine centers offering adjunctive treatment options including behavioral interventions to assist patients with symptom management.[1,9,10] Integrating behavioral interventions into the usual standard of care to improve patient outcomes is important as patient-reported measures including severity of symptoms,

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functional status, and quality of life are now being incorporated into value-based care for reimbursement purposes.[11] Clinical outcomes improve when patients take ownership with measuring, reporting, and managing their symptoms in partnership with care providers, demonstrating a critical link between patient engagement and better patient outcomes.[12,13]

This pilot study attempts to examine whether a motivational interview, focused on evidence-based recommendations targeted to manage postoperative thoracolumbar symptoms, will improve patient confidence with self-care management of their symptom-related disability. Specifically, the study is aimed at answering the following clinical question: Will postoperative thoracolumbar spine patients participating in a targeted motivational interview experience an increase in confidence with self-care management of their postoperative symptom-related disability?

Motivational interviewing (MI) is a patient-centered behavioral intervention designed to increase one's intrinsic motivation to change behavior and improve self-efficacy.[14] A core principle of MI is self-efficacy, the belief and confidence in one's ability to succeed in making decisions to engage in behaviors that promote health and wellness.[14–16] MI is a 2-phase process: The first phase is centered on building trust and rapport between the patient and the clinician; the second phase involves addressing the patient's confidence and commitment to change in the form of goal setting.[14,15] The first phase of MI consists of the following 4 stages simplified using the acronym OARS[14]: asking open-ended questions, affirming, reflecting, and summarizing. During the second phase of MI, the clinician provides information and advice to assist patients in developing self-directed goals.[15,16] Richardson[14] recommends the use of SMART goals: specific, measurable, achievable, realistic, and carried out within a specific time frame. Patients undergoing thoracic and/or lumbar spine surgery may benefit from MI because they often lack confidence with self-care management of symptoms such as pain, lack of sleep, depression, and immobility.

Methods

The pilot study was approved by the institutional review board before conducting any study procedures. A convenience sample of 15 postoperative spine patients were recruited from various spine clinics within a large comprehensive spine center in the United States during the spring of 2018. All patients provided informed written consent before participating. Inclusion criteria consisted of being 18 years or older, having spine surgery in the thoracolumbar region, and having the ability to be enrolled in the study either before the surgical procedure or within 2 weeks after the surgical procedure, the ability to speak and read English, and the ability to verbalize cognitive understanding of the study to provide written consent. Patients were excluded if they were unable to provide consent, had spine surgery related to spinal cord injury, or had spine surgery above or below the thoracolumbar region.

> Motivational interviewing may be a useful tool to incorporate into the perioperative and postoperative care.

A quasiexperimental, 1-group, pretest-posttest design was used to examine the effectiveness of a targeted MI intervention on participants' confidence in self-care management of their postoperative symptom-related disability. Study instruments included the Oswestry Disability Index (ODI) and Health Confidence Index (HCI). The ODI is collected at each clinic visit as standard of care and consists of a 10-item questionnaire evaluating mobility, pain level, and self-care limitations. Scores for each question range from 0 to 5, with 0 indicating no symptom-related disability and 5 indicating substantial symptom-related disability. The total score is summed and multiplied by 2 to produce a percentage score indicating disability level as follows: minimal (0%–20%), moderate (20%–40%), severe (40%–60%), crippled (60%–80%), and bed-bound (80%–100%). The ODI is used extensively in studies examining functional level in spine patients because of the tool's high reliability and excellent construct validity.[5,17] In a recent study evaluating psychometric properties of the ODI, 8 of the 10 ODI questions were nearly perfect in measuring patient-reported disability level to their actual disability level ($P < .0001$).[17] The ODI showed solid internal consistency ($\alpha = .85$).[17] In this pilot study, the baseline ODI measurement was used to determine the targeted patient-centered best practice recommendations to be integrated into each individual MI intervention. The HCI was used to measure participants' confidence with self-care management of symptom-related disability and is a single vertical line numerical scale that ranges from 0 ("not very confident") to 10 ("very confident"). The HCI has shown concurrent validity in relationship to the Consumer Assessment of Healthcare Providers and Systems measures now being used to determine reimbursement in healthcare.[13] Demographic information and participant comorbidities were collected from the electronic health record.

The primary author completed the MI intervention consisting of 1 face-to-face MI session at each participant's 2-week postoperative visit to the spine clinic followed by a short telephone follow-up intervention at 4 weeks postsurgery. Final data collection was obtained on-site at the spine clinic at each participant's 6-week postoperative visit. Immediately before the initial face-to-face MI session at their 2-week postoperative visit, participants completed the ODI and the HCI. The MI intervention was based on specific symptom-related disability identified on the ODI. Evidence-based recommendations targeted to improve thoracolumbar disability symptoms such as pain, impaired mobility, impaired sleep, and depression were incorporated into the MI process, and the participants chose which intervention(s) to incorporate into their care and set measurable goals to achieve implementation of the chosen intervention(s). The primary author used a prewritten script incorporating the principles of the MI process to ensure treatment fidelity. A short telephone follow-up intervention occurred 4 weeks after surgery to address the participants' progression with goals and any potential concerns. Again, a prewritten script was used to ensure treatment fidelity across participants. At the participants' 6-week postoperative visit, final data were collected using the ODI and HCI, and participants evaluated whether goals were achieved.

Data were analyzed using SPSS. Frequency distributions were calculated to describe participant demographics and intervention selection. Paired samples *t* tests were completed on participants' preintervention and postintervention scores on the HCI, on the ODI total score, and on each of the 10 items that the ODI questionnaire addresses. Results with $P < .05$ were considered statistically significant.

Results

Of 15 participants, 9 (60%) were older than 60 years, 9 (60%) were female, and 13 (80%) were white. Type of spine procedure was mixed with spinal fusion (n = 5), with decompression laminectomy (n = 5) being the most prevalent. Participant comorbidities included hypertension (6), hyperlipidemia (6), heart disease (3), and osteoarthritis (3). Seven participants chose to incorporate an intervention to increase mobility into their self-care, 4 incorporated a pain intervention, 3 incorporated a sleep intervention, and 1 incorporated a depression intervention. The results of the paired samples *t* test on participants' HCI scores showed a statistically significant improvement in participants' confidence with self-care management of symptom-related disability from pretest (mean [SD], 6.73 [2.12]) to posttest (mean [SD], 8.73 [1.44]), conditions: $t_{14} = -3.80$, $P = .002$. In addition, the results of the paired samples *t* test on participants' overall ODI scores showed a statistically significant decrease in participants' level of disability from pretest (mean [SD], 29.33 [18.05]) to posttest (mean [SD], 20.13 [15.35]), conditions: $t_{14} = 2.46$, $P = .027$. The results of the paired samples *t* tests on participants' scores on each of the 10 items that the ODI measures showed an improvement in all areas; however, a decrease in pain intensity was the only item that proved to be statistically significant from pretest (mean [SD], 1.53 [1.46]) to posttest (mean [SD], 0.80 [0.94]), conditions: $t_{14} = 2.21$, $P = .044$. From a clinical standpoint, a 10% or more improvement from baseline measurement in any given item on the ODI is needed to show clinical significance.[18] Although pain intensity was the only item on the ODI with a statistical significance from pretest to posttest, all items were clinically significant. Participants' total disability level decreased from moderate in severity (mean, 29.33) to nearly mild in severity (mean, 20.13). Last, there was a moderate correlation between disability level and confidence with symptom management ($r = -0.50$, $P = .056$). Comprehensive results of paired samples statistics and tests are illustrated in Table 1.

Discussion

This pilot study illustrates how healthcare providers can use MI to encourage the implementation of various health promoting behaviors that improve confidence with self-care management of symptom-related disability in postoperative thoracolumbar spine patients. These findings are consistent with previous studies that indicate that MI showed a positive impact on health promoting behaviors and confidence with self-care management of symptoms in other patient populations.[19–24]

Wasson and Coleman[13] recommend the use of MI if a patient's self-reported confidence on a 0-to-10 scale is 7 or less as an intervention to improve confidence with self-care management. In this pilot study, the MI intervention was performed on all participants in the sample regardless of their initial score. Although there was a statistically significant improvement in both participants' confidence with symptom management and overall disability level, there was a much higher improvement in confidence indicating only a moderate correlation between disability level and confidence with symptom management. This finding suggests that patients equipped with adequate tools to manage disabling symptoms may feel more empowered to manage these symptoms regardless of disability level.

The unique aspect of this pilot study was the incorporation of evidence-based practice recommendations

TABLE 1. Comparison of Means (N = 15) for the Health Confidence Index and Oswestry Disability Index (ODI)

Instrument or Item	Pretest Mean (SD)	Posttest Mean (SD)	Conditions t_{df} = Test Stat	Significance *P*
Health Confidence Index	6.73 (2.12)	8.73 (1.43)	$t_{14} = -3.80$	.002
ODI total score	29.33 (18.05)	20.13 (15.35)	$t_{14} = 2.46$	.027
ODI item 1: pain intensity	1.53 (1.46)	0.80 (0.94)	$t_{14} = 2.21$	.044
ODI item 2: personal care	0.53 (0.91)	0.47 (0.83)	$t_{14} = 0.36$	.719
ODI item 3: lifting	3.73 (1.38)	3.33 (1.49)	$t_{14} = 0.82$	.424
ODI item 4: walking	1.40 (1.45)	0.60 (0.82)	$t_{14} = 2.03$	.061
ODI item 5: sitting	1.07 (1.22)	0.73 (0.96)	$t_{14} = 1.16$	.265
ODI item 6: standing	1.47 (1.35)	0.80 (0.94)	$t_{14} = 1.67$	.116
ODI item 7: sleeping	0.87 (0.99)	0.67 (0.90)	$t_{14} = 1.38$	.189
ODI item 8: work/homemaking	1.33 (1.34)	0.93 (1.03)	$t_{14} = 1.70$	.111
ODI item 9: social life	1.33 (1.58)	1.00 (1.13)	$t_{14} = 0.81$	.43
ODI item 10: traveling	1.40 (1.59)	0.73 (0.68)	$t_{14} = 1.72$	.106

to improve symptom-related disability in thoracolumbar spine patients into the overall MI process. These recommendations were based on the findings of several studies evaluating interventions to improve pain, impaired mobility, impaired sleep, and depression in spine patients.[5,25–30] Recommendations to improve pain included increasing mobility, deep breathing exercises, meditation, listening to soft music, and realistic pacing with activities.[5,25,26,28] Recommendations to improve mobility included walking for aerobic exercise, stretching for gait and posture, stability and strength training for back and core muscles, and, most importantly, choosing an enjoyable activity.[5,26,29,30] Recommendations to improve sleep included increasing daily activity, meditating, journaling, reading, and listening to soft music.[25,27,28] Last, recommendations to reduce depression included eating a well-balanced diet, getting adequate sleep, decreasing substance abuse, and increasing activity, especially outdoors.[5,25,28]

Because increasing activity was a recommendation for several symptoms, most of the participants (n = 10) chose to increase daily walking as their goal. Because participants were between 2 and 6 weeks postsurgery, walking was the only recommended intervention to increase activity because any activity that included lifting or bending would not be appropriate for the participants during this time frame. Examples of participant SMART goals to increase activity include "I will increase my daily step count by 200 steps daily using my Fit Bit® device," "I will walk the hallway in my condo 12 times for a total of two times per day," and "I will walk around the block twice a day—weather permitting." Of note, 70% (n = 7) of the 10 participants who chose to increase daily walking as their goal had either one or more of the following comorbidities: hypertension, hyperlipidemia, and/or heart disease. Therefore, increasing daily activity not only had a positive impact on participants' confidence with symptom management but also served to improve their overall health.

The primary limitation in this pilot study is that a control group was not used, so it cannot be concluded that the positive outcomes were a result of the MI intervention. In addition, the sample size was small and primarily homogenous; therefore, results cannot be generalized to a larger population. This pilot study will be used as a guideline for development of a larger study directed toward improving symptom self-management after thoracolumbar region spine surgery. Recommendations going forward include using a larger sample size and placing participants in both experimental and control groups. The duration of the larger study should also be extended beyond the 6-week postoperative period so that participants will not be as limited in their choice of intervention to increase activity because of postoperative restrictions. In addition, participant level of symptom-related disability and confidence with symptom management should be measured for a longer period.

Conclusion

Our findings indicate that the MI intervention in this pilot study significantly improved participants' confidence with self-care management of symptom-related disability and symptom-related disability overall. This outcome suggests that MI may be a useful tool to incorporate into both perioperative and postoperative practice as a method of empowering thoracolumbar

spine patients to take action in managing their symptom-related disability instead of letting their symptom-related disability manage them.

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