Behavioral Health Self-Help Interventions Conducted During Chronic Pain Visits in a Primary Care Setting

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Abstract

**Purpose:**
This practice implementation assessed the feasibility and impact of implementing behavioral health self-help interventions during chronic pain management visits in a primary care setting.

**Data sources:**
Time series data collection occurred following the implementation of behavioral health interventions utilizing self-help strategies that included the Gate Control theory of pain control and sleep hygiene. Participants received monthly pain management visits conducted by their usual provider and interventions were performed by a single behavioral health specialist for consistency.

**Conclusions:**
Mean pain scores were significantly reduced from 5.93 to 4.29 ($p=0.000$) on a scale of zero to ten, and improvement was sustained over the two month post-intervention phase at the completion of the project. Mean pain assessment guide scores, range of zero (no impact) to fifty (maximum negative impact), significantly decreased from 23.30 to 16.89 ($p=0.001$).

**Implications for practice:**
This simple, brief behavioral health intervention, integrating Gate Control theory and an individualized plan for self-management, has shown lasting impact on the participant’s ability to control and manage their response to pain outside of the clinic setting. Encouraging engagement
and ownership of the individualized self-help activities by the patients is an important and empowering aspect of this intervention.
Behavioral Health Interventions Conducted During Chronic Pain Visits in a Primary Care Setting

Chronic pain management is a common problem seen in primary care settings (Pellmar & Eisenberg, 2010). The need for additional interventions beyond medication management has been identified in several studies (Anderson, Wang, & Zlateva, 2012; Hooff, 2012; Todd, 2008). Behavioral health interventions ranged from intensive two week applications occurring in residential environments to one time counseling sessions. The need to include behavioral health services in primary care settings is being encouraged by multiple health care regulatory agencies and research establishments (Pellmar & Eisenberg, 2010). McGeary et al. (2012) believe that demonstrating the feasibility of behavioral health interventions in primary care through similar projects regarding chronic pain practice will encourage other practice sites to investigate this adjunct therapy.

In the United States, approximately 26% of the adult population reported pain within the last 30 days. Approximately 13% of these adults reported that the pain had lasted for more than one year (Todd, 2008, p. 2). Pain is the number one reason for emergency room visits (Anderson et al., 2012). Application of behavioral health interventions at the primary care site may reduce over-utilization of emergency departments by encouraging the patient to incorporate self-help strategies into their individual pain management program to reduce pain perception (Anderson et al., 2012). This project was designed to assess both the use of a behavioral health self-help intervention delivered in an outpatient primary care setting and its impact on the patient’s perception of chronic pain and activities of daily living.
Literature Review

Various behavioral health intervention approaches have been demonstrated to improve outcomes for patients with chronic pain. Pain perception has been shown to improve with multidisciplinary approaches (Hooff, 2012). Intensive therapy lasting two weeks has been shown to have significant positive impact on activities of daily living for patients with chronic pain (Perry, Nicholas, & Middleton, 2011). Incorporating self-care strategies into the pain management process has improved patient perception of pain as well as utilization of coping skills associated with daily activities and interactions with others (Anderson et al., 2012).

Supplying an individual with the tools needed to better manage their disease process, and thus decrease associated symptoms and pain, can facilitate their gaining control over the perceived resulting pain impact (Janke, Spring, & Weaver, 2011). Management of pain also needs to address the social and economic factors that impact this process of self-management (Janke et al., 2011). Individual behavioral preferences and strategies must be considered and included in the development of behavioral health tools for pain management. These tools can then be utilized by the individual to alter the perception of their pain experience (Janke et al., 2011). Altering perceptions in a positive way and supplying the individual with the tools to maintain this alteration can result in an improved perception of their state of health (Newman, 1999). The Gate Control theory for pain control utilizes this alteration to enable the patient to achieve better pain control and improved quality of life (Melzack, 1996).

Subjects

The participants for this study were from a population of adult patients (18-65 years of age, inclusive) receiving services at the practice site, and experiencing chronic pain of any type. A nonprofit, privately owned community health center in rural southwest United States was
selected for this practice improvement project. Twelve primary care practitioners provide services at this site to approximately 30,000 people each year. There are no chronic pain management providers in the community; therefore chronic pain patients are seen at the primary care practice site. The site also provides behavioral health services by four Master’s prepared, licensed behavioral health specialists. They are able to respond to needs as they occur without prior appointment scheduling.

IRB approval for the project was obtained from Northern Arizona University, Flagstaff, Arizona prior to approaching any potential participants. Permission for conducting the project was obtained from the practice site prior to IRB submission. Participants were recruited at a rural, nonprofit practice site for this project from the end of September through early October, 2013. Only participants who met the inclusion criteria for the project were approached. Inclusion criteria required participants to be: English speaking, ages ranging from 18 to 65, receiving chronic pain management monthly visits, and expected to remain at the clinic through February, 2014 in order to complete data collection. They were also required to have self-reported a reading or education level of at least sixth grade. Chronic pain was defined as pain lasting over six months (Scascighini, Litschi, Walti, & Sprott, 2011).

To avoid the perception of coercion, eligible participants were limited to those patients receiving care from providers other than the primary investigator. The project and informed consent were explained by the primary investigator and discussed with each interested participant individually. Potential participants were informed that they could withdraw from the project at any time without cause. After questions were answered to their satisfaction by the primary investigator, they were then allowed time to consider the project. This ranged from three
to fourteen days. Thirty-two participants agreed to participate in the project and signed the informed consent.

Participants were informed that their participation would remain confidential, and that their name and identifying information would not appear in reports or publications resulting from the project. Participants were informed that (a) their information, including the informed consent, would remain in a locked drawer in a locked office at the facility; (b) the only person with access to all project-related information would be the primary investigator; (c) the primary investigator would give the participant’s name to the behavioral health specialist on the day of the intervention visit. Sample characteristics are shown in Table I.

**Methodology**

This was a time series study (Hicks-Moore, 2005) using a pretest-posttest design to compare patient pain rating and Patient Comfort Assessment scores. The interventions occurred at the monthly pain management visits of the participants. A behavioral health specialist spent approximately 15 minutes with each participant at two consecutive visits. At the initial intervention, Gate Control theory of pain control and sleep hygiene information was discussed. The second visit was a review of information from the initial visit as well as identification and reinforcement of strategies that worked for the individual participant.

Standard numerical pain scores of zero to ten were utilized at each visit (Agency for Healthcare Research and Quality, 1992). This numerical pain assessment has been identified as a standard of care (National Institute of Health & Warren Grant Magnuson Clinical Center, 2003). A self-assessment survey, the Patient Comfort Assessment Guide, was utilized to measure the impact of pain perceived by the participant. The survey has been validated in prior studies.
utilizing numerical responses of zero to fifty (Narcessian & Kessler Institute for Rehabilitation, 2012).

The Patient Comfort Assessment Guide that is currently in use at the facility was completed at each visit during this project. Additional behavioral health services, such as grief therapy or counseling, were made available to the participants as needed and requested. All behavioral health interventions were delivered in the exam room utilized by their primary care provider. Participants were not required to relocate to another exam room or return at another time specifically for project-related interventions

Information from the Patient Comfort Assessment Guide was extracted (by chart review) from the two pain management visits immediately preceding the intervention visits as well as the two visits following the intervention visits. This provided data from six consecutive visits for each participant. Twenty-eight participants completed the project. Visit information and scores were extracted from the electronic health record at the facility. Participant age, gender, and educational level were also retrieved for analysis. Medications for chronic pain management usually remain consistent over time with minor alterations in morphine equivalent dosing. During chart reviews specific prescribing was not collected but it was noted that major changes in prescribing habits of providers did not occur, such as migration to an alternative product.

Results

Data collected during the project were entered into SPSS version 22 for statistical analysis. Numerical scores for specific questions regarding sleep and personal interactions were compared from the Patient Comfort Assessment Guide scores (Narcessian & Kessler Institute for Rehabilitation, 2012). T-tests were used to compare differences between these scores across the time series (Kim & Mallory, 2014). Change over time was assessed by comparing values
obtained from chart reviews prior to the intervention to those obtained at two months post intervention. The means of the two pre-intervention visits were summed and averaged. This mean was then compared to the final visit mean to assess for change. Additional mean t-test comparisons were made to assess for any change(s) that occurred between pre-intervention visits and intervention visits, and between intervention visits and post-intervention visits. Dependent t-tests were chosen to compare data within a group at different points in time (Kim & Mallory, 2014). The significance level ($\alpha$) was 0.05 for this project (Terry, 2012).

Data demonstrated a statistically significant reduction in pain from the pre-intervention visits (visits one and two, summed and averaged) to the final visit (visit six) as illustrated in Table 2. The reported pain score decreased from a mean of 5.93 to 4.29 (range of 0-10) while the lifestyle impact indicators decreased from 23.30 to 16.89 (range of 0-50) as illustrated in Figures A and B. Changes in pain rating reduction ($p=0.000$) and Patient Comfort Assessment scores ($p=0.001$) were not as apparent at the first visit following the intervention visits, visit five. Mean pain score reduction calculated from initial visits to visit five was less than one full point, but continued to decrease through visit six. This suggested that continued use of Gate Control theory instructions had a continued positive impact on perceived pain.

Dependent t-tests were utilized to compare data within a group at different points in time (Kim & Mallory, 2014). Standard error was calculated and incorporated into the equation. Assumptions regarding the use of dependent t-tests are those of equal variance and independent measures (Kim & Mallory, 2014, p. 247). To meet the assumption of interval level data, this project utilized numerical scoring on a scale from zero to ten for pain and zero to fifty for Patient Comfort Assessment scores (Polit & Beck, 2012). These numerical values were also represented
on line graphs to visually represent the data and trends as illustrated in Figures A and B (Kim & Mallory, 2014). These statistical findings reflect improved outcomes for study participants.

**Limitations**

This project occurred at a rural, nonprofit site. The population available was limited to those receiving services at the site. The project location occurred within a multi-site health care facility. Behavioral health services are available at that location only on a daily schedule. The behavioral health specialist’s schedule varies according to scheduled time off and acute needs at other facilities within the practice, therefore same day appointments with a specific behavioral health provider may not have been available outside the project. Chronic pain management medications were adjusted at visits if indicated. Medication changes were not addressed in the analysis, but were noted during the study. Changes did not occur beyond morphine equivalent changes of less than ten percent as noted during chart reviews.

**Implications for practice**

Pain has a major impact on quality of life (Anderson, Wang, & Zlateva, 2012). A reduction in pain by ten percent on average can potentially have a life changing and positive impact on people experiencing chronic pain (Anderson et al., 2012). Achieving improvement in patient engagement in the pain management process has been shown to improve outcomes and reduce utilization of services (Anderson et al., 2012). This should translate to a healthier community whose members are more engaged in their care, assume greater responsibility for their health status, and take greater ownership of their health outcomes (Pellmar & Eisenberg, 2000). Demonstrating the feasibility of including behavioral health interventions as an integral part of chronic pain management care should encourage other primary care practitioners to investigate this adjunct therapy (McGeary et al., 2012).
The application of this concept into primary care practice in a nonprofit, rural clinic had not been well documented in the research literature (Pellmar & Eisenberg, 2000). The brief behavioral health intervention delivered in this study extends what is known about outcomes resulting from patient engagement in the pain management process. Outcomes of this project demonstrated an average reduction in pain across time of 15%. While further research is needed, findings from this project are encouraging and support the use of behavioral health techniques in pain management programs. Creating processes and programs that encourage engagement by patients in their care can positively impact outcomes.

**Conclusion**

Incorporating a brief behavioral health intervention in the rural primary care setting resulted in decreased pain ratings for participants in this study. Fifteen minute sessions were sufficient to produce positive results; importantly, these were easily incorporated into regular pain management visits with minimal scheduling issues or participant inconvenience.

The outcomes of this project support continued utilization of behavioral health self-help services at this facility as part of the overall management of chronic pain. The significant positive changes experienced by the patients who participated in this project demonstrate that this simple, short intervention can have lasting impact on their daily lives. Expanding this service for utilization by all providers of pain management at the facility is anticipated.
References


Table 1

*Sample Characteristics*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Male</th>
<th>Female</th>
<th>Age 18-45 (yrs)</th>
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<tr>
<td>Percentage</td>
<td>42%</td>
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### Results

#### Table 2

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<th>Pair</th>
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<th>Visit six</th>
<th>Mean</th>
<th>N</th>
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<th>Std. Error Mean</th>
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<td>.00094</td>
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#### Paired Samples Test

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<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
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<th>Sig. (2-tailed)</th>
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Figure A

*Mean Pain Scores*

Visits 1 & 2 = pre-intervention scores

Visits 3 & 4 = intervention scores

Visits 5 & 6 = post-intervention scores
Figure B

*Mean Patient Comfort Assessment Guide Scores*

Visits 1 & 2= pre-intervention scores

Visits 3 & 4= intervention scores

Visits 5 & 6= post-intervention scores