Published in final edited form as:
J Nurse Pract. 2014 December ; 10(10): 781–786. doi:10.1016/j.nurpra.2014.08.003.

Survey of Primary-Care Providers on Perceived Benefits of and Barriers to PainTracker

Melissa M. Schorn, DNP ANP-BC,
Doctoral student in the Adult Nurse Practitioner Program at the University of Washington in Seattle

Ardith Z. Doorenbos, PhD, RN, FAAN,
Professor in the School of Nursing as well as in the Department of Anesthesiology and Pain Medicine at the University of Washington in Seattle

Debra Gordon, RN, DNP, FAAN, and
Teaching associate with the Department of Anesthesiology and Pain Medicine at Harborview Medical Center in Seattle

Patricia Read-Williams, MD
Attending physician at the University of Washington Neighborhood Clinic in Issaquah, WA

Melissa M. Schorn: mschorn@u.washington.edu

Abstract

Management of chronic pain is a common and complex challenge in primary care. Patient-reported outcomes surveys can help assist the patient with chronic pain to communicate the symptoms to their provider and engage the patient in treatment planning and evaluation to improve both quality of care and patient outcomes. A web survey was used to assess clinic providers' perceived ease of use, barriers to use, and clinical benefits of a patient-reported outcomes survey, termed PainTracker. More than half the respondents were satisfied with PainTracker and 76% of respondents agreed that PainTracker helps patients participate in their pain management. Although only a first step, this study helps evaluate the benefits of involving patients in their pain management care.

Keywords

chronic non cancer pain; patient-reported outcomes; primary care; provider satisfaction; technology acceptance

---

In compliance with national ethical guidelines, the authors report no relationships with business or industry that would pose a conflict of interest.

Disclosure
This project was supported by National Institute of Nursing Research of the National Institutes of Health under Award Numbers R01NR012450 and K24NR015340, and has been conducted within the University of Washington system in conjunction with the University of Washington Neighborhood Clinic System.

Over 100 million individuals in the United States, and many more worldwide, struggle with chronic pain.[1] Chronic pain affects many facets of life including sleep, sexual activity, ability to take care of a family, daily activities, and enjoyment of life. Persistent pain negatively impacts a person's physical and emotional function.[2,3] Providers and patients find developing a pain treatment plan to be complex and challenging. A successful treatment plan that leads to improved outcomes requires patient participation in assessing the chronic pain.

In 2001, the Joint Commission on Accreditation of Healthcare Organizations designated pain monitoring as the "fifth vital sign" and required it as a hospital accreditation standard. The fifth vital sign initiative focused attention on the assessment of pain intensity on a 0 to 10 scale, with the clear understanding that appropriate pain treatment should achieve a numerical reduction of pain intensity. However, the effects of the fifth vital sign initiative on outpatient pain care are mixed. Although the initiative has clearly been associated with increased attention to pain on the part of primary-care clinicians, experts have argued that assessment of pain intensity alone is inadequate to provide a full picture of the patient's pain experience or need for treatment. Routinely measuring pain as the fifth vital sign did not increase the quality of pain management or documentation of pain.[4,5] Often, assessments in outpatient settings are missing vital elements, such as ability of the person with persistent pain to engage in their pain treatment plan, recognize and manage symptoms, and to assess function.[6]

Many state medical boards in the late 1990s and early 2000s removed restrictions concerning the chronic use of opioid analgesic medications to allow for prescription of opioids for legitimate medical purposes, such as chronic pain relief, by providers without sanction.[7] Together, with the fifth vital sign initiative, this significantly increased opioid prescribing for chronic pain.[8] As of 2010, at least 3% of the entire adult United States population, or over 10 million individuals, received daily or near-daily chronic opioid therapy for chronic pain, a fourfold increase since 1990.[9] This increase in chronic opioid therapy has been associated with increases in fatal overdoses, opioid misuse and abuse, falls and fractures, and emergency department visits.[10–14] In response to the high rate of fatal overdoses in Washington State, the legislature passed ESHB 2876, which mandates a series of best practices to improve opioid safety and chronic pain care. These practices include requirements for treatment plans and periodic assessments of opioid risk, pain, and function.[15]

Due to the subjective nature of pain and the multitude of elements of quality of life that are affected, it can be difficult for nurse practitioners (NPs) and other health-care providers to obtain a meaningful and comprehensive assessment of chronic pain. NPs are uniquely prepared to focus on health promotion and harm reduction in primary care through patient education and engagement in self-care strategies; identification of risk factors; and primary, secondary, and tertiary prevention of disease and disability. It can, however, be challenging to capture and document this information within one patient visit. Factors that should be included in an assessment of pain and treatment plan effectiveness are quality of sleep, impact of pain on physical and cognitive function, emotional distress, and quality of life overall.[16] In addition, it has been suggested that patients on chronic opioid therapy be monitored for the “five As,” including analgesia (pain), activities of daily living (physical and social functioning), adverse effects of medications, aberrant drug-related behaviors, and affect.[17]

As previously mentioned, the limited time NPs and other health-care providers have to assess and discuss treatment success or failure with each patient requires concise yet thorough re-assessment that includes, when possible, use of patient-reported outcomes (PROs). One way to aid this process is to use a standardized assessment tool. Use of PRO surveys can improve patients’ report of pain and quality of life, often provides information that would have been missed in a simple interview-style appointment, and improves patient participation in treatment planning and evaluation.[1,18] The difficult conversations health-care providers have with patients about turning toward self-management can be supported with innovative interactive PRO surveys that engage patients in a process of self-assessment. These surveys can both structure the clinical conversation in a productive way and provide a lasting record of that conversation for both patient and provider. Carefully framed assessments of patients’ perceived clinical problems, intrinsic health aspirations, and life and functional losses from chronic pain can be accessed via a web-based survey. Incorporating these various assessments into a web-based survey that tracks pain symptoms may begin the process of shifting treatment goals from pain reduction to pain self-management by supporting acceptance of pain, helping define realistic goals, and enhancing patients’ communication with providers.

The primary-care clinic system the principal investigator of this project collaborated with has recently developed and deployed a set of best practices for chronic pain management. These practices were deployed between April 2012 and March 2013 as a “SmartSet” feature within the electronic medical record and included: (1) structured health history and physical examination leading to a pain diagnosis and treatment plan; (2) standardized opioid treatment agreements and opioid safety risk assessments with the opioid risk tool and urine drug testing; and (3) periodic assessment of treatments and patient outcomes using PainTracker, a brief, chronic pain outcome tracking tool (available online at www.npjournal.org).

The purpose of PainTracker is to provide a brief graphical display of the association over time between treatments and outcomes important to patients with chronic pain. PainTracker includes independently validated assessments, namely: (a) the PEG—a three-item version of the Brief Pain Inventory (BPI) that assesses pain (P) and interference with enjoyment (E) of life and general (G) activities, and which has been shown to be nearly as responsive to improvement as the full BPI (area under receiver-operating characteristic curve: PEG 0.78 versus BPI 0.81)[19]; and (b) the Patient Health Questionnaire (PHQ-4)—a four-item screener for affect and emotional distress, including two items each from the PHQ-9 depression measure and the Generalized Anxiety Disorder seven-item (GAD-7) anxiety measure. The PHQ-4 is correlated as strongly with the Short Form-20 mental health score as the summed PHQ-9 and GAD-7.[20] PHQ-4 scores of 3 to 5, 6 to 8, and 9 to 12 represent mild, moderate, and severe distress, respectively. The other innovative pain-relevant outcomes include: (c) interference with personalized functional goal (selected by the patient with the health-care provider at the first visit); (d) interference with sleep initiation (getting to sleep), and maintenance (staying asleep); and (e) satisfaction with the results of pain treatment. PainTracker also screens for opioid misuse by asking, “How many bad days have you had in the past month when you needed to take more medication than has been prescribed?” PainTracker has not yet been independently validated as a chronic pain patient-reported outcomes (PRO) survey. The purpose of this project was not to validate or test the reliability of this tool, but rather to first see how well the tool is received by providers in a primary-care clinic setting.

PURPOSE

The purpose of this project was to survey and evaluate primary-care providers’ experience with Pain-Tracker to assess ease of use, clinical benefits of use, and barriers to use. The intent was to identify major areas of perceived benefit or dissatisfaction with use of a chronic pain assessment tool in the primary-care setting.

METHODS

Design and Setting

This project used a cross-sectional design and a convenience sample of health-care providers at a university-based primary-care clinic system in northwestern United States. There are 9 separate clinic locations throughout a greater urban area with 75 health-care providers, including physicians, NPs, and physician assistants. Institutional review board approval was obtained and the participants were assured anonymity.

Procedures

The medical director sent an e-mail invitation to all providers within this clinic system. The e-mail included a hyperlink leading to an online Catalyst survey. Paper surveys were also delivered to each clinic and placed in a common break room/charting room for providers to fill out and return to the investigator via postal mail, with prestamped envelope.

Instrument

The Catalyst survey was developed as a mechanism to identify satisfaction with the PainTracker tool and its use, and to identify barriers to the use of Pain-Tracker in the primary-care setting. The Technology Acceptance Model (TAM)[21] was the conceptual framework used to develop the core outcomes of “ease of use,” “clinical usefulness,” and “barriers to use.” Five experts in the field of nursing, psychology, and medicine, who have experience in direct patient care and research in chronic pain, including the author of PainTracker, were consulted throughout the iterative process of item development. The item responses were constructed with a 5-point Likert scale including the options of *strongly agree*, *agree*, *no opinion*, *disagree*, and *strongly disagree*. Additional demographic data on age, years of practice, and number of patients with whom the provider had used PainTracker were also included. To identify the salient views of providers on benefits of and barriers to PainTracker use, open-ended questions were included at the end of the survey.

Analysis

Demographics and responses to the survey questions were analyzed using descriptive statistics. Open-ended responses were coded for themes. Coding involves a close reading of the transcripts, first within each case to understand the specifics of the individual's experiences, then across all the cases to identify broader patterns across all the narratives. Content analysis followed, which involves an iterative process of reading through the transcripts and coding for substantive themes that are mentioned by the providers.[22,23]

RESULTS

The sample of respondents consisted of 30 primary-care providers (a response rate of 40%). Of these respondents, 83% were physicians, 13% were NPs, 73% were female, 73% were white, 17% were Asian, and 3% were Hispanic. Twenty-four providers responded via the Catalyst survey and six providers responded via paper survey.

Tables 1 and 2 list results as percentage of respondents who showed agreement or disagreement with specific survey items (instead of actual number of each participant response per item). The percentage of respondents who chose "no opinion" is not included in the data presentation. This method was chosen to facilitate a clear depiction of the data available from the respondents.

Analysis revealed that the majority of providers were generally satisfied with PainTracker and found it relatively easy to use (Table 1). Surprisingly, however, most providers indicated that PainTracker did not improve the safety of the care they provided. Many respondents also indicated by response that it was not easy to correlate change in PainTracker results with change in pain treatment plans. Most providers, as indicated by results in Table 2, agreed that there was no significant barrier to use of PainTracker and that it did not take too much time from the patient visit.

Common themes revealed in the open-ended responses related to positive aspects of PainTracker include gathering functional assessment information, engaging patients in their pain management planning, obtaining "objective data," and being able to see changes in survey outcomes over time. Areas for future modifications and study of this tool, as perceived by providers, include the usefulness of PainTracker for patients with stable pain treatment (or no opioid use); uncertainty among providers toward patients who continually share high pain scores and dysfunction scores and are perceived as possibly seeking to increase or avoid decrease of their opioid prescription; difficulty viewing PainTracker data in the electronic medical record; and concern about sending an ambiguous message to patients by having them sign a care agreement stating that they will not take more medication than prescribed and then having an item on PainTracker ask if they have done this very action.

DISCUSSION

This project reported here is an essential first step in the adaptation and dissemination of a patient-centered approach to chronic pain care in the primary-care clinic setting. It advances symptom science by testing a PRO pain management tool to determine whether it is feasible and effective in the primary-care setting from the perspective of health-care providers who have been utilizing this tool. The majority of providers who responded agreed that PainTracker facilitated patient participation in treatment planning. A common theme in the open-ended responses was that the information gathered on physical function and emotional distress, and the ability of PainTracker to involve the patient meaningfully in chronic pain management, were the two main benefits of using this tool. These two aspects of PainTracker are well supported by research[2,3,14,15] as being a cornerstone of chronic pain management.

Many of the providers did not believe that PainTracker increased patient safety. A few items included on PainTracker are intended to gather meaningful information on analgesic side effects and drug-related aberrant behaviors. There was no content in the providers' open-ended responses that pertained to side effects, aberrant behaviors, or safety of chronic pain treatment plans. Perhaps the low level of respondent agreement that PainTracker improves safety because providers find they have been able to obtain this information without the use of Pain-Tracker. They may hold the perception that the safety of the care provided is already optimized with other strategies such as urine toxicology screens, or traditional interview sufficiently gather information relating to patient safety. More inquiry into this topic is warranted, as the safety of chronic pain management strategies is an important area of focus for public health and quality care. Of note, this project gathered no information on the number of clinic patients filling out PainTracker who are prescribed opioids for their chronic pain. Most issues related to patient safety relate to use and prescription of opioids.

A majority of the responding providers indicated that PainTracker was easy to use; however, a common theme in open-ended responses for desired improvements was an increase in the ease of viewing PainTracker data in the electronic medical record. This may in part relate to the limited graphing capability of the clinics electronic medical record (EMR) vendor. Work is ongoing to move Pain-Tracker into a more visual web-based platform. It is beneficial to use this tool to its full extent, to fine tune and to improve a treatment plan during a patient visit, by being able to easily visualize trends in function and pain severity over time.

It is important for primary-care providers to include patients in their treatment planning and evaluation, regardless of whether a tool is available for use. Technology and patient outcomes surveys can be helpful. However, providers need to be savvy in using data to improve the efficiency and the quality of care they provide. The implications for NPs include implementation and evaluation of new tools such as Pain-Tracker at the individual and organizational level. PainTracker is a comprehensive tool to help NPs screen and document patients' risk for opioid treatment, educate and engage patients with chronic pain in self-care strategies, and follow outcomes over time. More work is needed in the area of chronic pain assessment to evaluate meaningful use and feasibility of tools such as PainTracker. Although this project is small and with limitations, it can serve to further discussion and inspire continued study by the nursing community.

Limitations

The sample size of this project was small, yielding low power of results and limiting the ability to generalize findings. The project was conducted within one clinic system and participation in the study was voluntary. Our study has focused only the Pain-Tracker, which limits applicability of findings to other clinic systems or use of other PRO surveys. Several items on the survey for providers were negatively phrased. This could result in some confusion and erroneous choice in response of agreement versus disagreement. Conversely, positively phrased items may also lead to bias and influence the responses chosen. Although there was representation from each clinic, some clinics had significantly fewer respondents. Differing patient populations or cultures within each clinic could result in bias toward the experience of a few clinics within the larger clinic system, skewing results of the survey. This could further limit the ability to generalize findings. Content analysis of open-ended items was performed by the principle investigator and was not validated by peer review, which may have led to biased analyses. Use of TAM as a conceptual framework helped to focus item development to obtain data within a defined construct and optimize internal consistency, yet no specific reliability testing was conducted on the survey.

CONCLUSION

There are few PRO surveys related to chronic pain developed specifically for the primary-care setting. Gaining an understanding of how such a tool has been received by providers in a clinic system is an important first step in supporting the use of PainTracker and other tools like it in the primary-care setting. The results of this project revealed relatively high satisfaction with PainTracker; most providers found that it increases patient participation in their treatment plan and is a valuable tool for obtaining data on patient function. Areas for further research and development include improving safety monitoring, improving the visualization of data in a useful and efficient manner in electronic medical records, and ensuring that clear messages are presented to patients. More research is needed related to patient assessment tools that support health-care providers in continuing to improve efficiency in meaningful and feasible ways.

References

1. Institute of Medicine Report from the Committee on Advancing Pain Research, Care, and Education. Relieving Pain in America, A Blueprint for Transforming Prevention, Care, Education and Research. Washington, DC: The National Academies Press; 2011. Retrieved from, http://books.nap.edu/openbook.php?record_id=13172&page=1
2. Dworkin R, Turk D, Wyrwich K, Beaton D, Cleeland C, Farrar J, et al. Interpreting the clinical importance of treatment outcomes in chronic pain clinical trials: IMMPACT recommendations. J Pain. 2008; 9(2):105–121. [PubMed: 18055266]
3. Turk D, Dworkin RH, Revicki D, Harding G, Burke L, Cella D, et al. Identifying important outcome domains for chronic pain clinical trials: an IMMPACT survey of people with pain. J Pain. 2008; 137:276–285.
4. Mularski RA, White-Chu F, Overbay D, Miller L, Asch SM, Ganzini L. Measuring pain as the 5th vital sign does not improve quality of pain management. J Gen Intern Med. 2008; 21:607–612. [PubMed: 16808744]

5. Zubkoff L, Lorenz KA, Lanto AB, Sherbourne CD, Goebel JR, Glassman PA, et al. Does screening for pain correspond to high quality care for veterans? J Gen Intern Med. 2010; 25:900–905. [PubMed: 20229139]

6. Ballantyne JC. Patient-centered health care: are opioids a special case? Spine J. 2009; 9:770–772. [PubMed: 19643676]

7. Federation of State Medical Boards of the United States, Inc. Model policy for the use of controlled substances for the treatment of pain. J Pain Palliat Care Pharmacother. 2005; 19(2):73–78. [PubMed: 16061467]

8. Joranson DE, Gilson AM, Dahl JL. Pain management, controlled substances, and state medical board policy: a decade of change. J Pain Symptom Manage. 2002; 21:227–237. [PubMed: 11239742]

9. Sullivan MD, Edlund MJ, Fan MY, Devries A, Braden JB, Martin BC. Trends in use of opioids for non-cancer pain conditions 2000–2005 in commercial and Medicaid insurance plans: the TROUP study. Pain. 2010; 138:440–449.

10. Dunn KM, Saunders KW, Rutter CM, Banta-Green CJ, Merrill JO, Sullivan MD, et al. Opioid prescriptions for chronic pain and overdose: a cohort study. Ann Intern Med. 2010; 152:85–92. [PubMed: 20083827]

11. Edlund MJ, Steffick D, Hudson T, Harris KM, Sullivan M. Risk factors for clinically recognized opioid abuse and dependence among veterans using opioids for chronic non-cancer pain. Pain. 2007; 129:355–362. [PubMed: 17449178]

12. Sullivan MD, Edlund MJ, Fan MY, Devries A, Braden JB, Martin BC. Risks for possible and probable opioid misuse among recipients of chronic opioid therapy in commercial and Medicaid insurance plans: the TROUP Study. Pain. 2010; 150:332–339. [PubMed: 20554392]

13. Saunders KW, Dunn KM, Merrill JO, Sullivan M, Weisner C, Braden JB, et al. Relationship of opioid use and dosage levels to fractures in older chronic pain patients. J Gen Intern Med. 2010; 25:310–315. [PubMed: 20049546]

14. Braden J, Russo J, Fan M, Edlund M, Martin B, DeVries A, et al. Emergency department visits among recipients of chronic opioid therapy. Arch Intern Med. 2010; 170:1425–1432. [PubMed: 20837827]

15. Washington State Department of Health. Pain management. 2010. http://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/HealthcareProfessionsandFacilities/PainManagement.aspx

16. Breivik H, Borchgrevink PC, Allen SM, Rosseland LA, Romundstad L, Breivik Hals EK, et al. Assessment of pain. Br J Anaesth. 2008; 101(1):17–24. [PubMed: 18487245]

17. Nicholson B, Passik SD. Management of chronic noncancer pain in the primary care setting. South Med J. 2007; 100(10):1028–1036. [PubMed: 17943050]

18. Jonsson T, Christrup LL, Hojsted J, Villesen HH, Albjerg TH, Ravn-Neilsen LV, Sjorgren P. Symptoms and side effects in chronic non-cancer pain: patient report vs. systematic assessment. Acta Anaesthesiol Scand. 2011; 55(1):69–74. [PubMed: 21039361]

19. Krebs EE, Bair MJ, Damush TM, Tu W, Wu J, Kroenke K. Comparative responsiveness of pain outcome measures among primary care patients with musculoskeletal pain. Med Care. 2010; 48:1007–1014. [PubMed: 20856144]

20. Kroenke K, Spitzer RL, Williams JB, Lowe B. An ultra-brief screening scale for anxiety and depression: the PHQ-4. Psychosomatics. 2009; 50:613–621. [PubMed: 19996233]

21. Carayon P, Smith P, Schoofs Hundt A, Kuruchittham V, Li Q. Implementation of an electronic health records system in a small clinic: the viewpoint of clinic staff. Behav Inform Technol. 2009; 28(1):5–20.

22. Hsieh H, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005; 15(9):1277–1288. [PubMed: 16204405]

23. Sandelowski M. Focus on research methods. Whatever happened to qualitative description? Res Nurs Health. 2000; 23(4):334–340. [PubMed: 10940958]

Table 1

Items Related to Satisfaction with Ease of Use and Perceived Clinical Benefit of PainTracker

	% Respondents Satisfied (Strongly Agree, Agree)	**% Respondents Dissatisfied (Strongly Disagree, Disagree)**
Overall, I am satisfied with PainTracker	56.6 (13.3, 43.3)	8 (3.3, 23.3)
Overall, I find PainTracker easy to use	70 (10, 60)	26.6 (3.3, 23.3)
It is easy to visualize change in pain outcomes that correspond to changes in pain treatments by viewing PainTracker in the electronic record	39.9 (3.3, 36.6)	46.6 (6.6, 40)
PainTracker is missing important pain outcomes[a]	20[a] (0, 20)	36.6[a] (3.3, 33.3)
I think PainTracker helps patients participate in their pain management	76.6 (16.6, 50)	3.3 (3.3, 0)
PainTracker helps me to modify a pain treatment plan according to treatment response	39.9 (6.6, 33.3)	30 (0, 30)
Using PainTracker during the patient visit improves my efficiency in understanding how my patients are doing	53.3 (13.3, 40)	36.6 (3.3, 33.3)
PainTracker improves the safety of the care I provide	30 (10, 20)	63.2 (6.6, 56.6)

[a] Item is negatively phrased; disagreement actually implies agreement.

Table 2

Items Related to Barriers to Use

	% Respondents Agree (Strongly Agree, Agree)	% Respondents Disagree (Strongly Disagree, Disagree)
The barriers to use of PainTracker outweigh the benefits	23.3 (3.3, 20)	46.6 (13.3, 33.3)
Using PainTracker during the patient visit takes too much time	29.9 (6.6, 23.3)	33.3 (10, 23.3)
The amount of time PainTracker adds to the clinic workflow is a significant barrier to its use	36.6 (6.6, 30)	46.6 (6.6, 40)