

Do Practice Style Traits of Physical Therapists Explain Practice Behaviors and Knowledge Translation?

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Abstract:

Background: Evidence-based practice (EBP) is supported by the appropriate use of standardized outcome measures (OMs). Continuing education (CE) is a common method for translation of OMs knowledge to practice. However, little is known about the attitudes and behaviors of physical therapists regarding CE and knowledge translation (KT) of OMs.

Purpose: To determine physical therapists' practice style traits (PSTs) and compare these to attitudes, knowledge, behaviors, and barriers for KT.

Subjects and Methods: Seventy-nine physical therapists who attended a CE course on OMs completed two standardized surveys. The Practice Style Questionnaire (PSQ) categorizes responses on three theoretical constructs: 1. how clinician weighs research evidence versus experience, 2. their degree of comfort in clinical practice, and 3. how evidence impacts their workload. The EBP Questionnaire (EBPQ) items are grouped into four domains: attitude, knowledge, behavior, and barriers.

Results: On the PSQ, 28% of subjects were categorized as "seekers" of evidence, 49% were "pragmatists," and 23% were "receptives." PSTs scores were compared to the four domains of the EBPQ. Behavior was the only domain found to be significant between traits ($p = 0.00$). Seekers were significantly different from both the pragmatists and receptives in their behaviors, however pragmatists and receptives did not differ.

Discussion and Conclusion: Assessing PSTs may help tailor KT interventions. Since nearly half of clinicians are pragmatists, it may be helpful to target KT interventions to this group, while considering the needs of other styles.

Keywords: Evidence-based practice, survey research, professional development

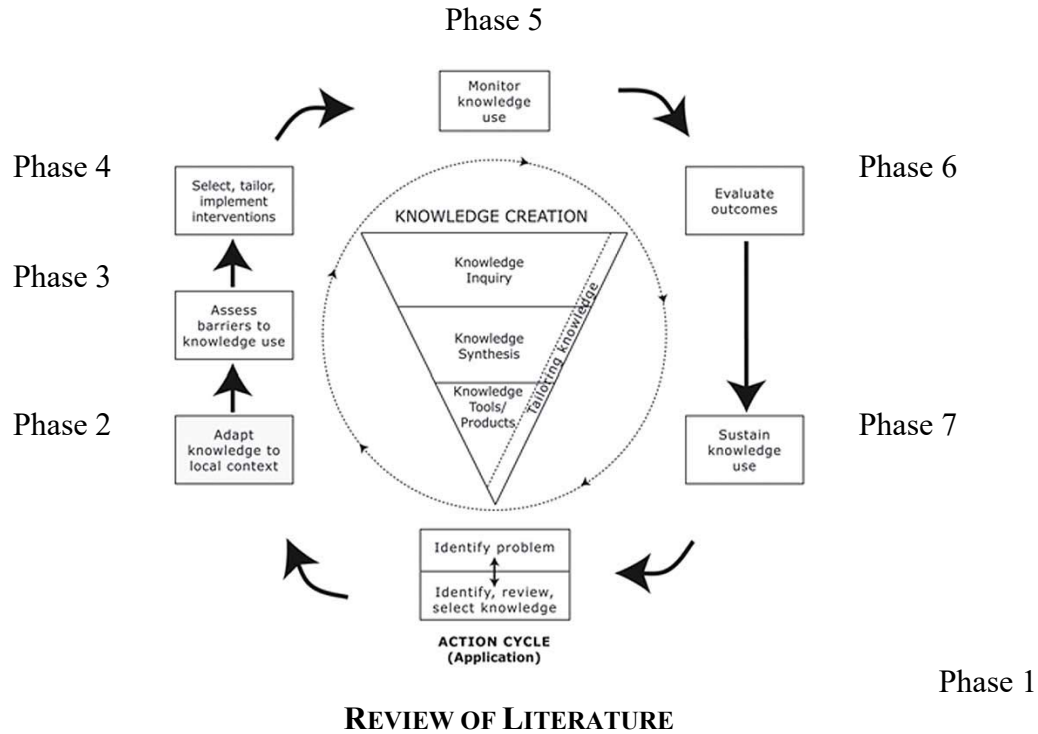
INTRODUCTION

Physical therapists must incorporate research evidence in clinical practice (Menon et al., 2009). Evidence-based practice (EBP) integrates clinical expertise, the best research evidence, and patient values and preferences to guide clinical decision-making (Sackett & Haynes, 2002). Determining an intervention's effectiveness, depends on measurement tools that accurately capture patient status and are responsive to change (Fulk & Field-Fote, 2011). Outcome measures (OMs), also when used from before and after an intervention, defined by D. Jette et al., (2009) "are standardized in that they use close-ended questionnaire formats or specific protocols for implementation, provide scores that allow quantitative assessment of ability, and have been evaluated for their psychometric properties" (p. 126). OMs have research evidence about psychometric properties in specific patient populations. Therapists who use OMs appropriately demonstrate the use of evidence in clinical decision-making, and this has been shown to improve both patient outcomes and optimize quality of life (Duncan et al., 2002; Fritz et al., 2007; Liddle et al., 2009; Overmeer et al., 2005; Rutten et al., 2010).

Knowledge translation (KT) is the dynamic process that includes the synthesis, dissemination, exchange, and application of knowledge to improve health and provide effective health services (Straus et al., 2013). A widely used KT conceptual framework is the Knowledge to Action (KTA) cycle (Graham et al., 2006; Straus et al., 2013). The KTA cycle was developed after reviewing over 30 theories specific to planned action theories (2006). The KTA cycle has been accepted as the model for promoting research and the framework for the processes of KT by the Canadian Institutes of Health Research (Straus et al., 2013). Figure one displays the dynamic and complex processes between knowledge creation and application of this knowledge within the action cycle (Graham et al., 2006). Once knowledge is created, synthesized, and tailored to the learner, it can enter the KTA cycle. The action cycle involves seven action phases that include: 1. identifying the problem, 2. adaption of knowledge to local context, 3. assessing barriers and facilitators to knowledge use, 4. selecting, tailoring, implementing interventions, 5. monitoring knowledge use, 6. evaluating outcomes, and 7. sustaining knowledge use (Graham et al., 2006). In clinical practice, each action phase can provide information about the next phase in sequential order. For example, assessing barriers and facilitators to knowledge use (action phase 3) can impact the next phase by providing an intervention to enhance KT (action phase 4) after the barriers and facilitators are determined (Straus et al., 2013). Additionally, because knowledge creation and synthesis is so vital and located in the center of the KTA cycle, it can simultaneously influence action phases at any point in time (Straus et al., 2013)

Despite the significant growth and accessibility of resources to facilitate the use of evidence, there is limited research regarding KT and OMs in clinical practice. Adaptation of knowledge to the local context (phase 2), barriers and facilitations to knowledge use (phase 3), and monitoring knowledge use (phase 5) are KTA cycle phases particularly relevant to how information disseminated in a continuing education (CE) course might be translated to impact clinical practice. The purpose of this study was to determine the practice style traits (PSTs) of physical therapists, who attended a CE course, and to compare these traits to their attitudes, knowledge, behaviors, and barriers for effective KT of evidence-based clinical practice guidelines and OMs.

Figure 1
Knowledge to Action Cycle (Straus et al., 2013)



Evidence is lacking regarding how knowledge about OMs selection and use is adapted to the local context, a physical therapists' practice setting (Bernhardsson & Larsson, 2013). Determining the attributes of physical therapists may inform this, action phase 2, adaptation to the local context. Green and colleagues have described and validated the clinical attributes of physicians and refer to these attributes as practice style traits (PSTs) (Green et al., 2002; Green et al., 2007). A clinician can be classified as a seeker, a receptive, a traditionalist, or a pragmatist. Table 1 defines each of these PSTs (Green et al., 2002; Green et al., 2007). In a study of 1393 primary care physicians, 2.5% were categorized as seekers, 57% receptives, 12.5% traditionalists, and 27.9% pragmatists (Green et al., 2002; Green et al., 2007).

A study of physical and occupational therapists working primarily in stroke rehabilitation reported that the most prevalent PST was pragmatist; the least prevalent was seeker (Menon et al., 2009). Comparable results were reported with physical and occupational therapy students (Hadouda et al., 2009). There is a need to understand how PSTs influence this action phase 2 with regards to KT of OMs (Straus et al., 2013). This level of understanding can begin to uncover which PSTs are the primary users of OMs across practice settings, foster best practices for future CE development, and elevate the level of interprofessional collaboration, all to optimize patients' participation in society.

The third and fifth action phases in the KTA cycle, address barriers to KT. Numerous studies reported barriers to KT of OMs for physical therapists including time constraints, lack of access to equipment and resources, and the knowledge itself for application of EBP (Dumoulin et al., 2007; D. Jette et al., 2003; D. Jette et al., 2009; Korner-Bitensky et al., 2008; Menon-Nair et al., 2007; Rochette et al., 2007). There is little evidence about how physical therapists' behaviors and attitudes are applied and modified when making evidence-based clinical decisions that can

significantly impact their patient's outcomes (D. Jette et al., 2009; Straus et al., 2013). Thus, there is a critical need to understand more about the physical therapists' behaviors such as the drive or lack thereof for seeking and applying evidence, which is vital to KT and the use of OMs in clinical practice.

Table 1

Practice Style Traits Defined (Green et al., 2002; Green et al., 2007)

| Practice Style Trait | Use of Evidence vs. Experience in Local, Clinical Environment | Nonconformity with Local, Clinical Environment (i.e., not following along with colleagues) | Practicality in Managing Workload (i.e., time management, efficiency) |
|-----------------------------|---|---|--|
| Seekers | Extreme evidence end; evidence is most reliable source of data | High | Not high |
| Receptives | Toward evidence end; evidence oriented but rely on others to critically appraise new data | Moderate | Not high |
| Traditionalists | Toward experience end; greatest value lies with personal experience | Variable | Not high |
| Pragmatists | Variable between evidence and experience; clinical decisions are made based on time | Variable | High |

SUBJECTS

Subjects were recruited from the attendance list of the American Physical Therapy Association,(APTA) Academy of Neurologic Physical Therapy's continuing education (CE) course: *Neurologic Practice Essentials: A Measurement Toolbox*. There were 137 course participants, and they were sent an email invitation to participate in the study by activating the embedded survey link. Participants were emailed weekly reminders during the three weeks the survey link was active. The Institutional Review Board approved this study, and all subjects were provided with an informed consent when completing the surveys.

METHODS

The study utilized two standardized instruments: the Practice Style Questionnaire (PSQ) and the Evidence-Based Practice Questionnaire (EBPQ). The PSQ is a 17-item questionnaire with items on attitudes and behaviors toward research evidence (Green et al., 2002; Green et al., 2007). Scoring is done on a 5-point Likert scale. The PSQ has been demonstrated to be a reliable and valid instrument with internal consistency 0.68-0.79 Cronbach's alpha (Green et al., 2002; Green et al., 2007). The PSQ is used to categorize respondents' practice style traits as seekers, receptives, traditionalists, or pragmatists (Green et al., 2002). These traits are based on three underlying theoretical constructs that include (Green et al., 2002):

1. how a practicing clinician weighs research (evidence versus experience)
2. the degree of comfort in clinical practice (conformity)
3. how evidence impacts a clinician's workload (efficiency and time management)

The second instrument subjects completed was the EBP Questionnaire (EBPQ), a 31-item questionnaire with items about EBP, the application of clinical practice guidelines, and OMs (Bernhardsson & Larsson, 2013). EBPQ items are grouped into four domains which are outlined in Table 2. Items are scored on a 5-point Likert scale or a multiple-choice format. The EBPQ has been reported to have face and content validity and test-retest reliability with 60-81% agreement (Bernhardsson & Larsson, 2013).

Data Analysis

Table 2

Evidence-based Practice Questionnaire Domains (Bernhardsson & Larsson, 2013)

| |
|--|
| Attitudes toward CPGs and OMs |
| Knowledge about EBP resources |
| Behavior related to the application of CPGs and OMs |
| Barriers and prerequisites for accessing guidelines and OMs |

Descriptive statistics were used to analyze subject demographic information and total scores on the PSQ. Chi-Square analyses were used to compare subject demographics by PST. A one-way analysis of variance (ANOVA) was used to compare PSTs to the four question domains of the EBPQ. Significance was set at a p-value = 0.0125 based on using the Bonferroni correction. A post hoc Tukey was performed to determine where the differences were based on comparing PST to the four domains of the EBPQ. Data were analyzed using the SPSS statistical software, version 22.0.

Results

Subjects

Completed questionnaires were received from 79 subjects (57%). The majority (73%) were between 30-49 years old and were APTA members (79%). Of APTA members, the Academy of Neurologic Physical Therapy had the greatest number of participants at 66%. Subjects' years in practice were distributed between 3-20 years, with 4% having less than three years and 25% reporting >20 years of clinical experience. Sixty-five percent of participants held specialty certifications through the American Physical Therapy Board of Specialties (APTBS). Additional subject characteristics are shown in Table 3.

Practice Style Traits

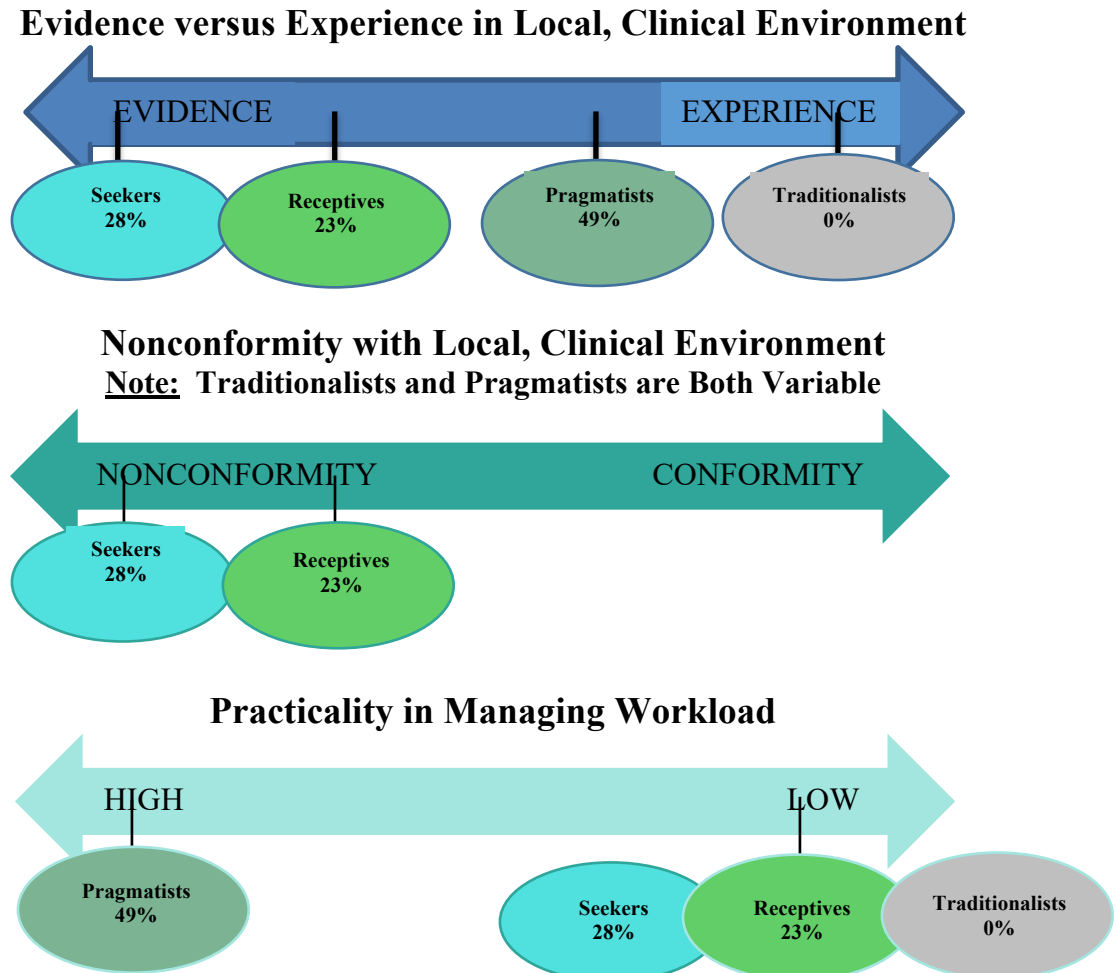
Based on PSQ analysis, 28% of subjects were seekers, 23% were receptives, and 49% were pragmatists. None were traditionalists. Seekers (28%) were evenly distributed between each decade of life. As a group, they had the highest percentage of academic terminal degrees (29%) and the largest percentage of APTA members (95%) and certified specialists through ABPTS (72%). The seeker group had the greatest percentage of academicians (34%), and members spent the least time in clinical practice (40%). Receptives comprised 23% of respondents, and the majority (94%) reported spending $\geq 50\%$ of their time in patient care, primarily in out and inpatient rehabilitation settings. There was an even distribution in age and level of education, and 83% were

APTA members. Pragmatists comprised 49% of respondents, and most were 30-39 years old. This group had the largest percentage (74%) who had earned a clinical doctorate in physical therapy (DPT) and most (79%) reported spending > 50% of their time in patient care. A summary of subjects' PSTs are shown in Figure 2.

Comparison of Practice Style Trait by Evidence-Based Practice Questionnaire Domains

Figure 2

Pictorial Representation of Practice Style Traits Organized by 3 Theoretical Constructs



EBPQ responses are grouped by the four question domains as outlined in Table 2 (Bernhardsson & Larsson, 2013), and PSTs by EBPQ domain are shown in Table 4. Behavior was the only domain with a significant difference across subjects' PSTs. Post hoc analysis was used to determine where the differences were in the behavior domain. Seekers were significantly different from both the pragmatists and the receptives, however, the pragmatists and receptives were not significantly different from each other.

Table 3
Demographic Information for Participants

| Variable | N (n=79) | Percent |
|---|----------|---------|
| Male/Female | 12/67 | 15/85 |
| Age | | |
| 20-29 | 6 | 7 |
| 30-39 | 36 | 46 |
| 40-49 | 21 | 27 |
| 50-59 | 13 | 16 |
| >60 | 3 | 4 |
| Years in clinical practice | | |
| <3 | 3 | 4 |
| 3-5 | 10 | 13 |
| 6-10 | 15 | 19 |
| 11-15 | 19 | 24 |
| 16-20 | 12 | 15 |
| >20 | 20 | 25 |
| Highest degree earned | | |
| Bachelors | 6 | 7 |
| Masters | 19 | 24 |
| DPT | 26 | 33 |
| t-DPT | 21 | 27 |
| Terminal Doctorate (i.e., PhD, EdD, Dsc) | 7 | 9 |
| APTA Member | | |
| Yes/No | 62/17 | 79/21 |
| ABPTS certification | | |
| Yes/No | 44/35 | 56/44 |
| <hr/> | | |
| Primary place of employment | | |
| Acute Care | 10 | 13 |
| Academic | 9 | 12 |
| Home Health | 2 | 3 |
| Inpatient Rehabilitation | 24 | 30 |
| Outpatient Rehabilitation | 20 | 36 |
| Research | 1 | 1 |
| Skilled Nursing | 4 | 5 |
| <hr/> | | |
| Portion of work spent with patient care | | |
| <25% | 10 | 13 |
| 26-50% | 9 | 12 |
| 51-75% | 16 | 20 |
| >75% | 44 | 54 |

Table 4*ANOVA-Practice Style Trait with Four Domains of Evidence-based Practice Questionnaire*

| Four domains | Significance |
|----------------------------|--------------|
| Attitude | .018 |
| Knowledge | .025 |
| Behavior* | .000 |
| Barriers and prerequisites | .030 |

DISCUSSION

This study examined the PSTs of physical therapists who attended a CE course on OMs and compared these traits to their attitudes, knowledge, behaviors, and barriers for KT. Our results are similar to prior research on PSTs in physical and occupational therapists and students, with the greatest percentage of subjects identified as pragmatists (Korner-Bitensky et al., 2008; Hadouda et al., 2009). Our subjects were dissimilar to prior research with physicians, which reported receptives as the largest group (Green et al., 2002). In our subjects, the least represented group was receptives, and there were no traditionalists. These results differed from previous studies on physicians, physical and occupational therapists and students, where the lowest percentage of subjects were seekers (Green et al., 2002; Korner-Bitensky et al., 2008; Hadouda et al., 2009; Korner-Bitensky et al., 2008; Rochette et al., Menon-Nair et al., 2007; Dumoulin et al., 2007; D. Jette et al., 2003; Green et al., 2007). The high percentage of seekers identified in this study compared with previous reports may be because this study's subjects self-selected to attend a CE course. These individuals may have the greatest potential for KT (Green et al., 2002; Green et al., 2007) since seekers rely heavily on evidence to make clinical decisions and tend not conform to the local, clinical environment. To optimize patient outcomes, our study concludes we have several opportunities not only to further support seekers upon completion of the CE course when returning to their local environments, but strategizing novel ways of targeting and accessing other PSTs so they too can begin to embrace and apply the highest levels of evidence on a routine basis.

When the PSTs of our subjects were compared to subject demographics, seekers were more likely to be academicians and spend the least amount of time in clinical practice. Receptives and pragmatists both spent greater than 50% of their time in clinical practice. When PSTs were compared to the four domains of the EBPO, the behavior domain of questions was the only domain found to be significantly different between the PST groups. Seekers were significantly different from pragmatists and receptives; however, the latter two groups were not significantly different from each other. Seeker's behaviors include searching and reading scientific articles and using clinical practice guidelines and OMs in their daily clinical practice as compared to pragmatists and receptives.

Knowing the PSTs for CE course participants before the start of a course may lead the course faculty to tailor course delivery. For example, subjects' PST may be considered in creating in-class activities and small group discussions highlighting the benefits of each trait and the complimentary nature of collaborative work among individuals with diverse traits. Discussion in small groups could also be based on blending individuals with different traits, which are identified earlier on, to simulate a more realistic clinical environment. The profession of physical therapy

may choose to consider CE offerings considering the higher percentage of seekers as well as considering alternative delivery methods that would appeal more to traditionalists, pragmatists, and receptives. In daily practice, clinicians interact with individuals of the same and different PSTs. Acknowledging one's PSTs and trait characteristics may help foster optimal inter-group collaboration and elevate the overall level of KT (Chapman et al., 2020; Mlambo et al., 2021).

The EBPQ is the first standardized tool to identify variables that underlie the EBP behaviors of the physical therapist. Knowledge about the behaviors and attitudes yields information about the factors influencing the application of standardized OMs and clinical practice guidelines. Information from studies such as ours can help guide future efforts to develop best practice standards by promoting the consistent use of standardized OMs and implementation of clinical practice guidelines. Both administrative and clinical leadership could foster these ideal behaviors by providing specific educational sessions, using technology to assist the clinician in making efficient decisions about OM and clinical practice guideline use, performing chart audits as a learning tool and means of reflection, and working to minimize barriers related to time and lack of and access to needed equipment.

Finally, it is concerning that the high percentage of pragmatists who spend a significant amount of time in direct patient care are least likely to use evidence for clinical decision-making. There is an opportunity to enhance practice by targeting KT efforts specifically toward the needs and behaviors of this important group. Advocacy efforts need to be put in place for the use of OMs and KT of the best available evidence from seekers and receptives. From a global healthcare system perspective, physical therapists categorized as pragmatists need support from this level to modify their clinical behaviors.

LIMITATIONS

Subjects self-selected to attend this CE course. Self-reporting questionnaires may introduce a social desirability bias as subjects often express what they think is expected of them rather than what they believe and do (Steiner & Norman, 1995). Additionally, participants who elected to complete the surveys were a high percentage of members of the APTA and were certified specialists through the American Physical Therapy Board of Specialties (APTBS). These limitations could minimize the generalizability of this study to the larger population.

CONCLUSION

Most physical therapists who participated in this study were found to be pragmatists who are characterized as varied in how they weigh evidence versus experience and their degree of conformity with evidence in clinical practice. Pragmatists are less likely to seek out and translate evidence for clinical practice unless it assists with efficiency in managing their workload (Green et al., 2002; Green et al., 2007). Future educational efforts and research should target utilize knowledge of clinicians' PSTs to enhance the creation and application of knowledge to optimize patient care.

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