

Characteristics of Physical Therapists Reporting High and Low Skill Confidence in Examination of the Pelvic Floor Muscles

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ABSTRACT

Objective: To investigate the characteristics of physical therapists (PTs) reporting high and low confidence in the examination of pelvic floor muscles (PFMs) and to evaluate the common characteristics of PTs who use little to no PFM examination when treating patients with PFM dysfunction.

Study Design: Retrospective cross-sectional survey.

Background: Educational opportunities for PTs to learn PFM examination techniques are varied and there are many methods to evaluate the PFMs. Factors related to increased confidence in performing PFM examination have not been studied.

Methods and Measures: Women's health PTs (N = 1175) received an email invitation to participate in the study. Two hundred three (n = 203) PTs completed the 38 question web-based survey (17.3% response rate).

Results: Characteristics of PTs with low confidence include (a) having 1 to 6 months of pelvic physical therapy experience, (b) participated in self-study 1 to 3 times per year, (c) performed first vaginal examination less than 1 year ago, and (d) attended less than 1 day of continuing education. Higher confidence is associated with several factors including increased duration and frequency of experience in performing PFM examination as well as participation in postprofessional continuing education in PFM examination. Respondents using little to no PFM examination had less confidence than PTs who use PFM examination.

Conclusions: To improve confidence in PFM examination, PTs should participate in postprofessional education in PFM examination and should perform this examination with increasing frequency for more than 6 months. Sporadic use of PFM examination may result in low confidence.

Key Words: education, experience, vaginal examination

INTRODUCTION

Pelvic floor muscle (PFM) dysfunction is a complex condition in which the muscles of the pelvic floor cannot contract or relax when needed. Standard classification by the International Continence Society (ICS)

divides PFM dysfunction into the categories of underactive or overactive.¹ Underactive PFM is defined as “a situation in which the PFM cannot voluntarily contract when it is appropriate.”^{1(p379)} This is reflected in decreased strength, endurance, and poor coordination with increased intra-abdominal pressure. It is associated with urinary incontinence and pelvic organ prolapse. Overactive PFM is defined as “a situation in which the PFMs do not relax, or may even contract when relaxation is functionally needed.”¹ This is measured as a muscle spasm, a holding pattern, or incoordination and may result in dyspareunia and pelvic pain.¹

Physical therapists (PTs) in the United States have become increasingly involved in the examination and treatment of PFM dysfunction over the past 15 years.² There are a variety of educational opportunities for American PTs to learn PFM examination including entry-level professional education, postprofessional college education, residencies, postprofessional continuing education courses, mentoring, on-the-job training, and self-study. In an effort to meet the ever-increasing interest of PTs and other medical professionals who want to become skilled in the examination and treatment of PFM dysfunction, several groups have developed postprofessional educational programs. Table 1 represents some of those groups.

Legally, any licensed PT can examine the PFMs. Currently, there is no minimum standard educational requirement, nor is there a standardized method of examining or treating PFM dysfunction. There are many methods to examine the PFMs including real-time ultrasonography, magnetic resonance imaging, dynamometry, external observation with verbal instruction, pressure biofeedback, vaginal/rectal palpation, and surface electromyography (EMG). A brief overview of these PFM examination methods will be described in this article; however, the focus of this study was to determine how PT confidence is associated with PFM educational opportunities and methods used to evaluate the pelvic floor.

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Table 1. Postprofessional Educational Programs for Examination and Treatment of PFM Dysfunction

Credentiaing Body	Name of Specialization	Certification Designation
The American Board of Obstetrics and Gynecology in combination with the American Board of Urology	Subspecialty certification Female Pelvic Medicine and Reconstructive Surgery (previously called Urogynecology)	None
Wound, Ostomy and Continence Nursing Certification Board	Certified Continence Care Nurse	CCCN
Certification Board for Urologic Nursing and Associates	Various names depending on educational level (Certified Urologic Registered Nurse)	CURN, CUCNS, CUNP
Certification Board for Urologic Nursing and Associates	Certified Urologic Physician's Assistant	CUPA
Biofeedback Certification International Alliance	Certification in Pelvic Muscle Dysfunction Biofeedback	BCIA-PMDB
American Board of Physical Therapy Specialists	Women's Health Certified Specialist	WCS
Herman and Wallace Pelvic Rehabilitation Institute	Pelvic Therapy Practitioner Certification	PTPC
Jan Hulme	The Pelvic Rotator Cuff Institute	None
Section on Women's Health (SOWH) of the American Physical Therapy Association	Certificate of Achievement in Pelvic Physical Therapy	CAPP-Pelvic

Ultrasonography, magnetic resonance imaging, and dynamometry are not widely available to PTs at this time. External observation with verbal instruction alone is not considered adequate to fully assess PFM function.² Verbal instruction of PFM contraction has been shown to be ineffective in generating urethral closure force in 51% of patients³ and results in adverse bearing down in approximately 15% of patients.⁴ Pressure biofeedback has been shown to be a valid and reproducible test of PFM function² but does not appear to be currently used widely by PTs in the United States, possibly due to lack of availability of equipment.

Vaginal/rectal palpation assessment of the PFMs may include many measurements (see the Appendix). Most of these measures are considered “subjective” because quantification is difficult and reproducibility is poor.¹ Intertester and intratester reliability of vaginal palpation strength has been studied and results are conflicting.⁵⁻⁸ Vaginal palpation strength testing has also been compared with pressure biofeedback strength testing, with no agreement in measurements.² Most experienced clinicians agree that digital palpation of the PFM contraction is of great value in assessing the ability to perform a correct PFM contraction.² This continues to be the gold standard for identifying a correct PFM contraction.^{9,10}

Surface EMG training appears to be another widely used modality by PTs in the United States for assessment and training of the PFMs. Studies have shown good interrater reliability ($r = 0.86$), intraobserver reproducibility, correlation to vaginal palpation strength grades, and correlation with the presence of urinary leakage.¹¹⁻¹³ Test-retest reliability of EMG and significant clinical predictive validity ($P < .05$) for lower EMG values with all forms of urinary incontinence has also been established.¹³ Some clinicians feel

that EMG is the best measurement of all assessment variables except “lift” (which is best measured by vaginal palpation).²

Pelvic floor muscles are skeletal muscles that can be examined and treated using many of the standard neuromotor principles used on other skeletal muscles. The examination and treatment of PFM function is included in practice Pattern 4C: Impaired Muscle Performance Diagnostic Classification of the *Guide to Physical Therapist Practice*.¹⁴ The Section on Women's Health (SOWH) of the American Physical Therapy Association (APTA) has published an Official Position Statement regarding the inclusion of PFM examination in physical therapy practice stating:

Examination of the pelvic floor muscles is consistent with physical therapy practice. It complies with national physical therapy policies requiring the performance of tests and measures of neuromuscular function as an aid to the evaluation and treatment of a specific medical condition. (Adopted February 1993, revised August 2000)

The SOWH has provided guidelines for the professional training of PTs in women's health to all entry-level professional PT educational programs.¹⁵ Students are encouraged to participate in a number of experiential activities including verbal instruction in PFM exercises. Observation of a PFM examination performed by an advanced clinician may also be one of the activities offered to professional physical therapy students. This may include vaginal palpation, EMG, or pressure biofeedback measurements. According to the SOWH, vaginal palpation examination, EMG, and other assessments of the PFM are not considered skills taught in entry-level professional educational programs. Complete examination of the PFMs is considered a postprofessional skill.

Across disciplines of orthopedic (manual therapy), neurologic, and domiciliary care (home health) physical therapy, “expert” clinicians illustrate attributes such as refined clinical skills, ability to clinically problem solve during a context-rich examination, and confidence predicting patient outcomes based on clinical data gathered/interpreted.¹⁶ “Experts” also demonstrate commitment to professional growth.¹⁷ The ultimate aim of any educational program is to provide “the kind of educational experience that would lead to the preparation of the most knowledgeable, competent, and caring practitioners whose self-confidence, clinical skills, adaptability, and service orientation would serve the interest of the patient.”¹⁸ Medical professionals pursue education in an effort to increase knowledge and advance clinical skills. Confidence in one’s clinical skills may be a reflection of quality education or a reflection of competence that is acquired through learning. The authors have initiated a series of research studies to identify best methods of education to promote competence and mastery in PFM assessment.

This study was a part of a larger project that investigated the educational experiences undertaken by PTs and the methods of PFM examination currently being

used by PTs.¹⁹ The first aim of this study was to examine the characteristics and educational experiences of PTs reporting high and low confidence in the examination of PFM, and the second aim of this study was to report the common characteristics of PTs who use little to no PFM examination when treating patients with PFM dysfunction.

METHODS AND MEASURES

Women’s health PTs from the APTA SOWH, Biofeedback Certification International Alliance (BCIA) EMG courses, and personal PT contacts (N = 1175) received an invitation to participate in the study via an e-mail that contained a link to the survey. SurveyMonkey sent the e-mail to the addresses provided by the investigators. Follow-up e-mails were sent to recruit nonresponders. In addition, the link was included in several blast e-mails inviting members of the SOWH to complete the survey. SurveyMonkey returned all responses anonymously. All students, physical therapy assistants, and international PTs were excluded. Two hundred three (n = 203) PTs completed the 38 question Web-based survey (17.3% response rate) (Figure 1). Survey questions, validated

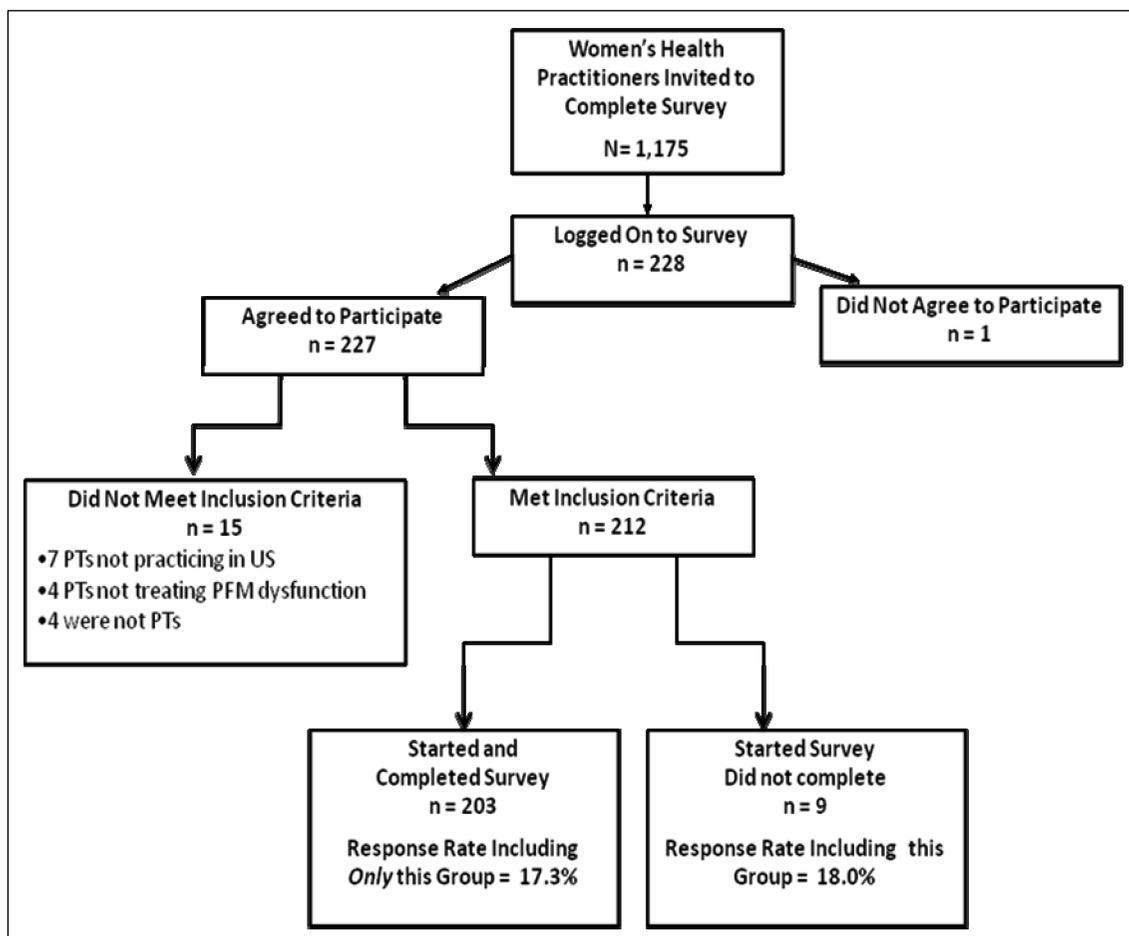


Figure 1. Participant responses.

Table 2. Pelvic Floor Muscle Examination Techniques Surveyed

Examination of the PFM by observation of perineal mobility
Examination with vaginal and or rectal palpation by the therapist
EMG biofeedback assessment with intravaginal sensor
EMG biofeedback assessment with external sensor
Assessment with real-time ultrasound
Pressure biofeedback assessment
Examination of the PFM by observation of perineal mobility
Examination with vaginal and or rectal palpation by the therapist
EMG biofeedback assessment with intravaginal sensor
Abbreviations: EMG, electromyography; PFM, pelvic floor muscle.

by 4 content experts, addressed education in PFM dysfunction (entry-level and postprofessional education in PFM dysfunction, continuing education course work, self-study, formal mentoring, on-the-job training); current frequency of use of 6 different types of PFM assessments (Table 2); length of time in pelvic physical therapy practice; and confidence in PFM examination skill. Subjects were also asked to rate the importance of PFM examination in developing a plan of care for the treatment of PFM dysfunction. Data were compiled by SurveyMonkey, and results were analyzed individually and collectively. Descriptive statistics and nonparametric correlations (Spearman rank correlation) were used to identify relationships and trends and significance was established at the $P \leq .05$ level. All significant correlations are presented using r^2 to show the relative strength of the relationship between the variables.

RESULTS

Description of Subjects

Respondents included PTs currently treating PFM dysfunction (92.5%) and PTs who have treated PFM dysfunction in the past 5 years but are not currently treating (7.5%). The majority of subjects in this survey reported earning either a baccalaureate or master's entry-level professional degree (46.9% and 39.3%, respectively) and 7.6% had a doctorate degree. The highest degrees earned followed a similar trend for baccalaureate and master's degrees, with an additional 12.3% reporting a transitional doctorate degree and 3.3% reporting doctorate and/or PhD degrees (Figure 2).

Experience in Examining and Treating Patients With PFM Dysfunction

Respondents were asked to describe their practice in treating PFM dysfunction by reporting the number of hours per week in practice over a specific duration of months or years (Figure 3). Physical therapists reported treating PFM dysfunction sporadically (1-12 hours per week) almost evenly throughout the durations from 1 month to more than 10 years, with the largest number practicing sporadically 1 to 3 years. Respondents reported part-time treatment of PFM dysfunction (13-29 hours per week) most often after 1 year up to more than 10 years. Reports of full-time practice in PFM dysfunction (≥ 30 hours per week) gradually increased starting at 7 to 11 months of experience. The majority (42.3%) of those reporting full-time PFM experience had been doing so for longer than 10 years. Overall, 25% of all subjects reported full-time practice with experience greater than 10 years.

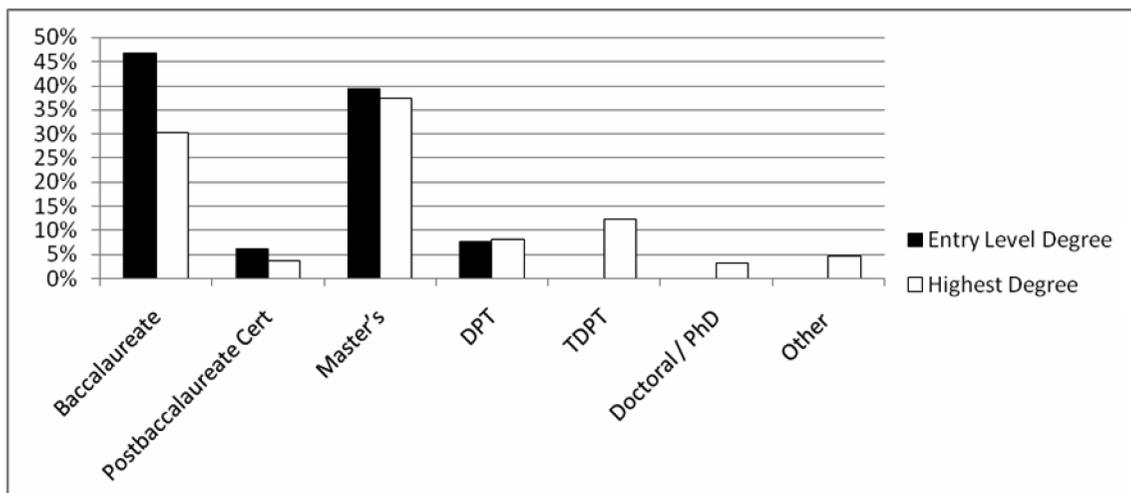


Figure 2. Respondent's degree status.

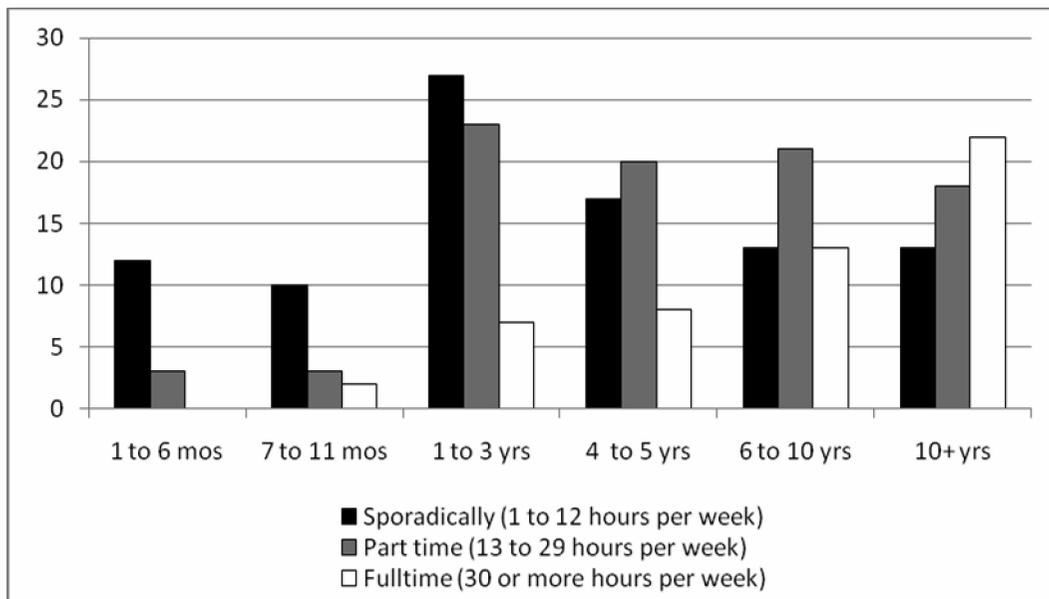


Figure 3. Frequency and duration of treating PFM dysfunction.

Factors Associated With Confidence

The first aim was to determine whether there were specific factors related to confidence in performing PFM assessment. Subjects were first characterized as having high or low confidence. When asked to respond to the following question: “I am confident in performing PFM examination on most patients,” 91% ($n = 185$) of respondents agreed or strongly agreed. These individuals were classified as having high confidence and were compared with the subjects who disagreed or strongly disagreed with the statement (9%; $n = 18$).

Specific factors related to confidence included (a) amount of experience, (b) time since learning vaginal examination, (c) time spent in self-study, and (d) days of postprofessional continuing education.

The amount of experience in PFM dysfunction treatment had a predictable influence on confidence. Low confidence was associated with treating with less frequency or over a shorter duration of time. ($r_s = 0.347$, $r^2 = .12$). Among therapists reporting very little experience (1-6 months), 31.5% reported low confidence and 4% reported high confidence. Respondents were also asked how long ago they first learned the PFM examination. This is another measure of experience and had a similar correlation; lower confidence was associated with more recent learning of PFM examination ($r_s = 0.351$, $r^2 = 0.12$). Only 7% of PTs reporting high confidence performed their first vaginal examination less than 1 year ago.

In examining the type of education used and its influence on confidence, 2 methods were associated. Overall reported self-study frequency appeared to be distributed in almost a bell curve, with the majority

(27.2%) reporting self-study 1 to 3 times per month (Figure 4). A very small number of subjects (3.9%) reported never participating in self-study, and a slightly higher number (7.3%) reported self-study more than 3 times per week. More self-study was associated with higher confidence ($r_s = 0.274$, $r^2 = 0.08$). In the group of respondents reporting self-study 1 to 3 times per year, 44% reported low confidence and 16% reported high confidence.

Less confidence was associated with less postprofessional continuing education ($r_s = 0.331$, $r^2 = 0.11$). Of those reporting attending less than 1 day of continuing education, 11% report low confidence and 1% had high confidence in their skills of PFM examination. Time spent in continuing education for all respondents is represented in Figure 5.

Mentoring frequency and on-the-job training were not significantly related to confidence ($P = .30$ and $P = .09$, respectively.) Of all respondents ($n = 207$), 98 reported having on-the-job training and 57 subjects reported having formal mentoring experiences. In both subgroups of respondents, 92.7% reported high levels of confidence; however, low subject numbers and lack of statistical power resulted in an inability to find a statistically significant relationship between these methods of education and confidence.

Use of Specific Examination Techniques and Confidence

Respondents who reported higher confidence used external observation of perineal mobility ($r_s = 0.236$, $r^2 = 0.05$) and vaginal and/or rectal palpation ($r_s = 0.255$, $r^2 = .06$). Overall, most therapists used external observation (68.5%) and examination with vaginal or

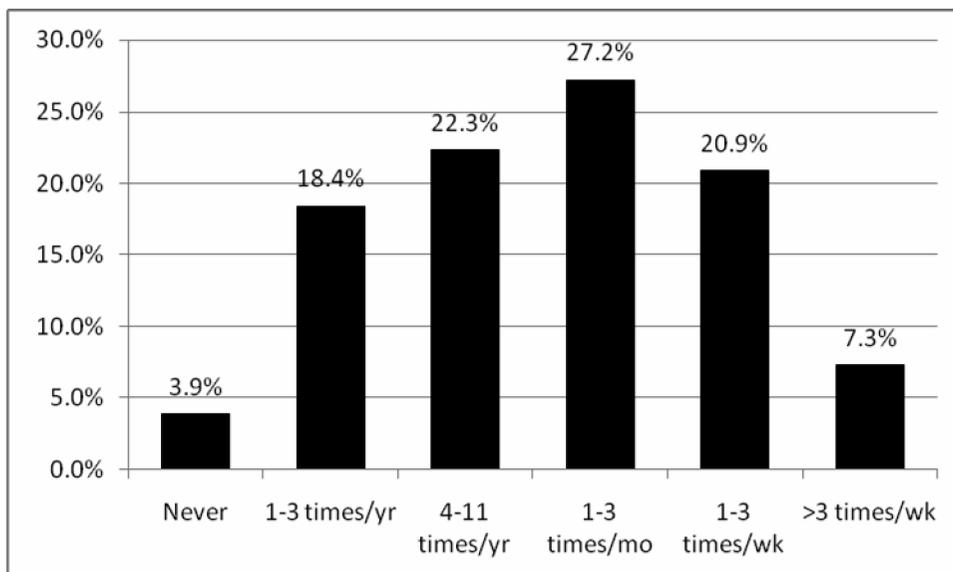


Figure 4. Respondent's time spent in self-study.

rectal palpation (73.9%) for 76% or more of their patients. An additional 4 therapists reported never learning vaginal PFM examination but used EMG assessment of the PFM with all of their patients and reported high confidence in their PFM examination skills.

Assessing "Importance" of Using PFM Examination

A secondary aim of this study was to investigate the characteristics of therapists who did not find PFM examination important or who did not use PFM

examination. Participants were asked to respond to the following question, using a Likert-type scale: "Performing a PFM examination is important for the development of a plan of care for the treatment of PFM dysfunction". One hundred ninety-three respondents stated they felt the examination was important. Ten respondents said PFM examination was not important in developing a treatment plan. Respondents reporting greater confidence believed that PFM assessment was important ($r_s = 0.444$, $r^2 = .20$).

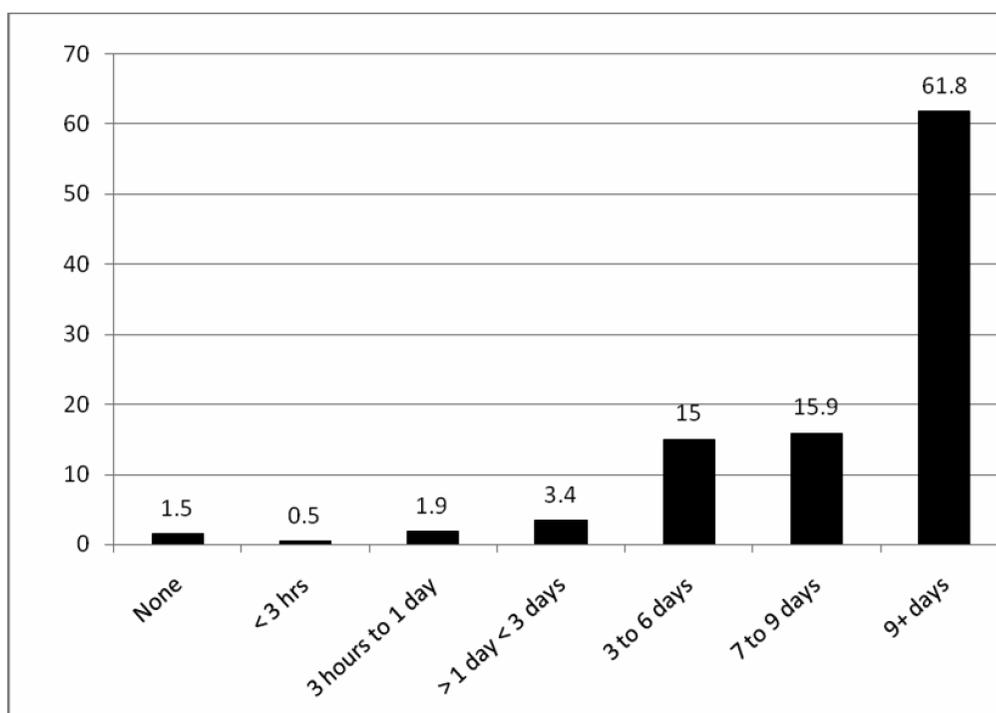


Figure 5. Respondent's days participating in continuing education.

Use of Little to no PFM Examination Techniques

Seven subjects reported learning PFM examination by vaginal palpation but “never or rarely” used the vaginal PFM examination with their patients. Six of these subjects did not use any of the PFM examination techniques listed in this study (Table 2). The remaining subject reported external observation of perineal mobility as the only method of PFM examination used. Subjects who did not examine the PFM received less postprofessional continuing education (>6 days 28.6% vs 78.2% in all subjects). Almost half of these subjects (42.8%) reported learning the examination technique less than 1 year ago (compared with 9.5% of all subjects). Self-reported confidence in these subjects (57.1%) was well below the entire group (94.4%). Surprisingly, 4 subjects (57.1%) who reported not using PFM examination techniques had been practicing in pelvic physical therapy for more than 3 years.

DISCUSSION

Experience in Examining and Treating Patients with PFM Dysfunctions

In contrast to nurses and occupational therapists, PTs do not receive entry-level education on the treatment of the perineal area. Because of the intimate nature of this type of care, it is neither a desirable nor suitable aspect of practice for every PT. Clinicians who choose to provide pelvic physical therapy must overcome their hesitancy of performing a PFM examination and develop confidence in their ability to execute a PFM examination skillfully. If one is confident in performing PFM examination, assessment, and treatment skills, he or she must either (1) have obtained the necessary education and competence to provide patients with appropriate care or (2) is in denial of the fact that he or she is actually unskilled. Confidence has been associated with both the expert clinician¹⁶ and quality education.¹⁸ In this study, the amount of practice experience and time since learning vaginal examination were positively associated with increased confidence in performing PFM examination. In other words, those with more clinical experience had more confidence.

Education in PFM Examination

Performing a PFM examination is a motor skill. Skill learning can be divided into 2 phases. In the first phase of skill learning, one must understand the idea of movement. In the second phase, one must refine the skill.¹⁸ The development of skill is influenced by many factors including amount of practice and feedback (frequency, scheduling, timing, and type of feedback). Nicholson states “secondary to the amount of practice, information feedback is often considered to be the most important variable influencing skill learning.”²⁰ Therefore, true motor skill learning requires

some form of feedback. Feedback can be either internal or external. A careful combination of both, with opportunity for discovery learning, is best.²⁰ Theoretically, it would be best to include personal interaction with an expert instructor to provide skilled external feedback in addition to self-discovery and internal feedback when learning PFM examination skills. In this study, we investigated the association between learning experiences in PFM examination and practitioner confidence. Learning experiences included entry-level professional education, professional continuing education, self-study, mentoring, and on-the-job training.

A small proportion of subjects (7.7%) reported practicing internal PFM examination in their entry-level professional education. Although the subject numbers are low, now it does not appear that practicing the vaginal PFM examination in entry-level education increased confidence. However, exposure to PFM examination in entry-level programs may increase acceptance of the examination and increase interest in the field of pelvic physical therapy. It appears that more entry-level professional education programs are offering students the opportunity to practice the PFM examination. Further investigation of this group of PTs will be forthcoming.

Health care practitioners (ie, physicians and nurses) spend between 1 and 3 weeks per year in continuing education courses.²¹⁻²⁵ Physical therapists sampled from western and northwestern states have been reported to attend an average of 28 continuing education hours per year.²⁶ Continuing education has been shown to be a way to enhance professional development,^{27,28} positively change professional practice,²⁹⁻³¹ and in some cases patient health outcomes.^{30,32-34} In this study, a favorable relationship was found between confidence in performing PFM examination and the number of days spent in postprofessional continuing education. Three subjects reported no time in postprofessional continuing education. All 3 also reported very low confidence in their PFM examination skill. Resnik and Jensen¹⁷ reported that extensive education does not guarantee an expert clinician. Further research will be needed to determine whether more education is associated with better patient outcomes in this area of physical therapy.

Self-study is another method of learning and was defined in this study to include study groups, home study, Internet modules, journal clubs, and reading of journals and books. While it may not be the best way to learn a motor skill such as that required for the examination of the PFM vaginally, it is a way to stay abreast of emerging research. Researchers studying the “expert physical therapy clinician” have documented an inner drive toward lifelong learning in these practitioners.^{16,17} Self-study may be a measure

of one's effort to continue to learn and to advance one's practice. Interestingly, some individuals who had low confidence spent a noteworthy amount of time in self-study, which we relate to their efforts to enhance their confidence.

Formal mentoring was defined in this study as "a formal, planned supervision such as an affiliation, residency, BCIA mentor, or other structured interaction with a professional." On-the-job training (informal mentoring) was defined in the study as "informal educational interactions with a professional." Gandy³⁵ lists the following benefits of mentoring: new knowledge, stronger theoretical foundations, and development of problem-solving skills. She goes on to state that "mentorship can be seen as crucial to the continuing evolution of the physical therapy profession." In this study, 47% of subjects received on-the-job training and 27% received formal mentorship in PFM examination and treatment. In both groups, 92.7% reported high confidence; however, on-the-job training and formal mentoring were not found to have a statistically significant relationship with confidence in PFM examination skills. The apparent lack of benefit of guided clinical experience was surprising, as one would suspect both on-the-job training and formal mentoring result in more confidence and use of more advanced skills. The lack of statistical significance might have been due to the low number of subject responses to this question. There might also have been a misunderstanding of how mentoring and on-the-job training were defined. Future studies, with larger subject numbers, will be needed to compare the practice characteristics of PTs who have received formal mentoring and/or on-the-job training versus those who have not had similar experiences.

Value of Type of Examination Skill Used

Skilled clinicians typically choose PFM examination techniques that have been shown to have good psychometric properties; however, there is no one test that can document all PFM measures. Vaginal and rectal PFM palpations are considered to be the gold standard for ensuring the patient is performing a PFM contraction correctly. Experts recommend that other testing be completed to document the quantity of PFM contraction.² Observation of perineal body mobility provides information about PFM function but is not sufficient to quantify PFM activity alone. Surface EMG is a valid and reliable way to quantify PFM activity.¹¹⁻¹³ In this study, a significant correlation was found between high confidence and use of external observation and direct internal PFM palpation. Therefore, clinicians wanting to increase confidence in PFM examination should learn the internal PFM palpation method and use it clinically.

The majority of PTs (93.7%) felt that performing a PFM examination is important for the development of a PFM plan of care. A remaining 6.3% (10 subjects) felt that PFM examination might not be important for treatment planning. As expected, increased confidence in performing PFM examination was found to be statistically significant in those who felt that the PFM examination was important.

Lack of PFM Examination

In this study, 7 PTs learned vaginal PFM examination but rarely used it. Of these 7, only 2 reported any mentoring or on-the-job training.

Despite receiving education in PFM examination, these individuals did not clinically apply the skill. It is possible that these therapists used other objective measures such as bladder diary results, quality-of-life indexes, and/or symptoms indexes (which are often used in conjunction with PFM examinations) both to document patient status and to judge success in treatment. However, failure to directly measure muscle function limits a PT ability to use certain diagnosis codes. For example, many PTs use *International Classification of Diseases, Ninth Revision*, codes 728.85 (muscle spasm) and 728.9 (muscle weakness) for billing purposes. It would not be appropriate to use muscle-based diagnosis codes when billing for an examination in which only bladder diary results or functional outcome measures were used.

The Guide to Physical Therapist Practice¹⁴ mandates the use of validated examination tools of which many exist for the PFM including those queried in this study.^{2,36} Despite the lack of minimum educational requirements or standardized methods of examining PFM dysfunction, a practitioner should feel compelled by professional code and ethics to pursue education, work to achieve competence, and consistently use PFM examination to develop a plan of care for patients with PFM dysfunction. Instructors of PFM education would be wise to stress the importance and value of PFM examination in treating PFM dysfunction in an effort to guide the small percentage of individuals who choose to treat PFM dysfunction without first examining PFM function.

It has been shown that course work alone is not sufficient to change practice patterns.^{37,38} Physical therapists who participate in continuing education followed by ongoing instruction, structured mentoring, and/or long-term course work are more likely to change practice patterns and have significantly improved patient functional outcomes.^{38,39} Other researchers have also shown this to be true in urologic education of nurses.^{40,41} Research on education outcomes will assist instructors in developing educational opportunities that results in skilled, knowledgeable, and confident PTs who provide evidence-based



examination and treatments and result in good patient outcomes.

LIMITATIONS

The sample in this study was not large enough to guarantee the avoidance of type II statistical error. In other words, it is possible that more statistically significant associations would have been identified if the sample had been larger. That being said, the significant correlations reported in this article that had fair strength likely point to associations that would appear to be even stronger with a larger sample size.

Because of a response rate of 17.3%, readers should be judicious when interpreting the results of this study. There is the possibility that the data were not fully representative of all PTs treating PFM dysfunction. In addition, there might be individuals treating PFM dysfunction who do not belong to the professional groups solicited (APTA SOWH; BCIA). Of particular interest are those who have learned PFM examination in entry-level programs or those who practice EMG-only examination and treatment of PFM dysfunction.

Subjects in this survey have entry-level and post-professional educational degrees consistent with the typical active US PT member as surveyed by the APTA, making the subjects in this survey representative of the typical active PT member in this regard.

CONCLUSION

Confidence in evaluating the PFMs is related to (a) having more than 6 months of experience in pelvic physical therapy; (b) learning the PFM examination more than 1 year ago; (c) having more than 6 days of continuing education; (d) participating in self-study more than 1 to 3 times per year; and (e) using external observation and direct internal palpation. Mentorship and on-the-job training appear to increase confidence, but a statistically significant association has not been established. Physical therapists who do not examine the PFM have less experience, less education, less confidence, and value PFM examination less than PTs who do examine the PFM.

Postgraduate continuing education training in PFM examination appears to play a major role in increasing confidence in examination skills. Physical therapists interested in developing confidence in PFM examination should invest time in continuing education, direct patient care, and self-study. Further study is needed to determine how these variables relate to patient outcomes.

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Appendix

Possible PFM Impairments: Subjective Measures

• Tone of the muscle: hyper/hypotonic
• Size and symmetry of the muscle: hypertrophy/atrophy
• Trigger points, tender points, muscle spasm
• Scar mobility and pain
• Relative size of the vaginal vault (especially if a probe is being considered)
• Coordination of PFM contraction
• Strength of PFM
• Endurance of PFM: length of holding capacity
• Ability of the muscle to shorten and lift: a measure of support