Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association

Volume 8 | Issue 4 Article 2

February 2023

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Recommended Citation

Madden, Meredith and Ross, Dominique M. (2023) "The Theory of Planned Behavior as a Framework to Identify Attitudes and Perceptions of Athletic Trainers towards Quality Improvement," *Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association*: Vol. 8: Iss. 4, Article 2.
DOI: https://doi.org/10.25035/jsmahs.08.04.02
Available at: https://scholarworks.bgsu.edu/jsmahs/vol8/iss4/2

The Theory of Planned Behavior as a Framework to Identify Attitudes and Perceptions of Athletic Trainers towards Quality Improvement

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Purpose: The BOC announced a concept for continuing professional certification for athletic trainers (ATs), including an optional quality improvement (QI) project to examine practice performance. The purpose of this study was to examine current attitudes, perceived control and subjective norms of ATs regarding QI. **Method:** Data was collected using a qualitative descriptive design. A web-based survey was distributed via email and social media. Open-ended questions were evaluated by two independent coders using a general inductive approach. **Results:** Three major themes emerged: reservations about QI, benefits of QI, and impacts on the profession. **Conclusions:** When integrated into the Theory of Planned Behavior model, results show that ATs demonstrate positive attitudes towards QI and agree that optimal patient outcomes are essential. However, many ATs perceive that they lack the appropriate knowledge about QI, how to implement QI, and the resources needed to be successful. Possible recommendations include a systems approach in which athletic training organizations and regulatory bodies consider providing ATs strategies to improve perceived control, such as continuing education opportunities and tools to advocate for resources. Additionally, the integration of QI into athletic training is a cultural shift; professional organizations may benefit from acknowledging and promoting enhanced clinician and patient outcomes.
Key Words: *continued professional certification, patient safety, healthcare outcomes*

INTRODUCTION

In the early 2000s, the National Academy of Medicine (NAM) introduced the STEEEP principles that describe six critical aims to improve the quality of patient care and safety; these aims include care that is safe, timely, effective, efficient, equitable, and patient-centered.[1] As such, healthcare organizations have a responsibility to prioritize meeting these goals within their practice through quality assurance and improvement efforts. Quality improvement (QI) is becoming an increasingly important buzzword in athletic training practice and education. The purpose of QI is to enhance patient and athletic training-related outcomes, such as reducing costs, increasing efficiency, and decreasing patient safety errors.[2] Although QI can be implemented for significant changes to organizations and clinician practice, QI can also be used to make small but meaningful changes that are easier to integrate into existing athletic training routines.

The Commission on Accreditation of Athletic Training Education (CAATE) has integrated QI as a core competency for professional athletic training education, thus preparing the future generation of athletic trainers (AT) to participate in such activities.[3] In addition, the Board of Certification (BOC) recently shared a concept for continuing professional certification (CPC), including an optional QI project to examine practice performance.[4] The subsequent open comment period elicited a range of polarized responses from the athletic training community demonstrating a questionable level of readiness for a change in professional behaviors. Although other healthcare professions have abundant literature examining QI implementation and impact [5-7], there is limited exploration of QI in athletic training research and the experiences of ATs integrating QI into their practice. Although the BOC conducted several QI pilot projects and sought feedback from volunteer participants, feedback from the athletic training community was not gathered until after the announcement of the new concept

for CPC. Presently, there is no known evidence that seeks to understand the perceptions of ATs and willingness to participate in a QI project. The Theory of Planned Behavior (TPB) is a framework that may be used to determine the intention of ATs to engage in QI by examining current attitudes, subjective norms, and perceived control.[8] Within this model, these three factors are independent, but each contribute toward behavioral intention. Attitudes refer to the favorable or unfavorable evaluation of the behavior and can independently play a significant role in determining the intention of an individual.[8] Subjective norms are the perceived social pressures to perform or not to perform the behavior, demonstrating the influence of the people that surround an individual. For example, in an organizational structure, a culture emerges that defines values and beliefs that guide the behaviors of the members.[6] Lastly, perceived control encompasses the self-identified facilitators and barriers. In addition, perceived power over the control factors contribute to the likelihood of performing the behavior.[9] In general, the more positive the findings among these three factors, the more likely an individual is to perform the behavior.[9] The purpose of this study was to explore the current attitudes, perceived control and subjective norms of certified athletic trainers regarding quality improvement. The study aimed to answer the following research questions:

1. What are the attitudes of ATs towards QI?
    a. Do ATs support the idea of integrating QI into clinical practice?
2. Do ATs believe they are capable of integrating QI into clinical practice?
    a. What are the perceived existing and needed resources to implement QI?

METHODS

Design

The study was implemented as a qualitative descriptive design. University institutional review board approval was obtained prior to data collection. A web-based survey program (Qualtrics, Provo, UT) was used to gather data.

Participants

Respondents were included if they provided electronic consent, self-identified as an AT in good standing with the BOC, and completed the open-ended responses. A total of 44 respondents (25 clinicians, 14 educators, 3 researchers, and 2 others: a manager and unreported) were included for qualitative data analysis. Additional demographic information is summarized in Table 1.

Response Type	**n (%)**
Workplace Setting	
Clinic or Hospital	5 (11.4)
College or University	25 (56.8)
Secondary School	10 (22.7)
Professional Sports	1 (2.3)
Other	3 (6.8)
Primary Role	
Clinician	25 (56.8)
Educator	14 (31.8)
Researcher	3 (6.8)
Other	2 (4.5)
Years Certified	
0-5	1 (2.3)
6-10	3 (6.8)
11-15	12 (27.2)
16-20	8 (18.2)
20+	16 (36.4)
NATA District	
1- ME, NH, VT, MA, CT, RI.	15 (34.1)
2- DE, NJ, NY, PA	5 (11.4)
3- MD, NC, SC, VA, WV, DC.	10 (22.7)
4& 11- IL, IN, MI, MN, OH, WI	9 (20.5)
5- IA, KS, MO, NE, OK, ND, SD	1 (2.3)
6- AR, TX	1 (2.3)
7- AZ, CO, UT, NM, WY	1 (2.3)
8- CA, HI, NV, GU, AS	0 (0)
9- FL, GA, AL, KY, LA, MS, TN, VI, PR	2 (4.5)
10- AK, ID, MT, OR, WA	0 (0)

Table 1. Demographic Characteristics

Instrumentation

A custom web-based questionnaire was designed using the Qualtrics platform. The survey included a demographic section and questions designed to explore knowledge, attitudes and perceptions of ATs regarding QI (Table 2). For the purpose of the study, QI was defined as "systematic and continuous actions that result in measurable improvement in health care services and in the health status of targeted patient groups."[3(p.72)] The TPB was used as a framework for designing the questionnaire, specifically using open-ended questions to explore individuals' attitudes towards QI through a variety of perspectives (e.g., favorable and unfavorable). Additionally, a question about participants' broader attitudes towards QI (i.e., professional level) was asked to enhance exploration of the constructs of the TPB.[8] By phrasing the questions as "reservations" and "benefits" participants were able to freely interpret the question (e.g., as a feeling, reaction, or in relation to resources), which addresses multiple levels of the TPB. Prior to data collection, the tool was reviewed by 3 ATs familiar with survey research. The reviewers independently provided feedback on readability, clarity, flow, functionality of the link, and to approximate the amount of time needed to complete the survey. After trialing the survey, several grammatical edits and adjustments to flow were made.

What are your reservations about using QI in your practice?
What benefits do you think QI can bring to your practice?
How do you think QI projects may impact the AT profession?

Table 2. Survey Questions

Procedures

The survey was posted to a private athletic training Facebook page with 9,300 followers and distributed via email to 400 clinicians, researchers and program directors using a convenience sample. Recipients were encouraged to re-post, share, and forward the survey link and recruitment information. Data was collected over a two-week period, between September 22, 2021 and October 8, 2021, concurrent, but not connected, with the BOC Continuing Professional Certification open comment period that ended September 30, 2021.

Data Analysis and Trustworthiness

Demographic questions were analyzed using Microsoft Excel® to calculate descriptive statistics (Table 1). Open-ended questions were evaluated within and across all three questions by two independent coders with expertise in qualitative research methodology. Prior to qualitative data analysis, coders agreed to use a grounded theory approach as described by Creswell and Creswell.[10] Coders used open, axial, and selective coding processes. Independent coders both achieved saturation within each major theme and sub-themes. After separate analyses were conducted, coders convened to discuss any discrepancies until consensus was achieved.

RESULTS

Three major themes emerged: 1) Reservations about QI, 2) Benefits of QI, and 3) Impact on the profession. Each major theme was further described by sub-themes with representative quotes.

Reservations about QI

The first theme, reservations about QI, illustrated the reasons that participants felt hesitant, unwilling, or unable to use QI in practice. Some participants described "hesitation about bringing up blind spots or areas of weakness and then needing to deal with them…" (Clinician 12, collegiate setting) or a sense of fear that using QI "might…reveal shortcomings" (Educator 4). Other participants demonstrated an unwillingness to use QI because they were "not interested" (Educator 5) or held an attitude that there were no benefits to QI. However, a majority of the reservations reported by participants

stemmed from a lack of knowledge or misconceptions about QI implementation as one participant summarized, "No clue what it is. No time. Not in a setting this is even feasible" (Researcher 3).

Two sub-themes, *knowledge*, and *attitudes and perceptions*, emerged as significant factors creating reservations about QI among participants. Knowledge was defined as a lack of information on QI, both as a concept and as a process. A majority of participants reported needing more understanding about what QI is. One participant stated, "I'm not sure I completely understand it" (Clinician 22, collegiate setting). The knowledge sub-theme also demonstrated an uncertainty and lack of knowledge about how to implement QI. With participants noting, "Don't have a good enough understanding of what it is or even how to begin implementing it" (Clinician1, collegiate setting) and "I am unsure how to best implement it in my workplace" (Clinician 7, collegiate setting).

The attitudes and perceptions sub-theme represented the challenges that ATs presumed they would encounter when trying to use QI. Most participants perceived that they lacked the resources necessary (e.g., time, money, people power) for a successful QI project, described by one participant as "...just having the time to do it, meet with the leadership team and finding monies to be able to do some of the things that need to be done" (Clinician 10, secondary school setting).
Participants across settings overwhelmingly reported a lack of time and money to implement QI, with a participant quipping, "I'm not doing a research project. Who has time for that?" (Clinician 13, collegiate setting). Additionally, a major concern of participants providing patient care was that QI projects will compete with the ability to provide quality care and redirect available resources. One secondary school AT commented, "Time/Money to do and activate QI while still providing health care to 400+ athletes as the only AT" (Clinician 4, secondary school setting). Another participant echoed, "Any benefit would be vastly outweighed by the decrease and availability for the one AT (me) at my school to provide quality care, as it will shift my attention away" (Clinician 2, secondary school setting). While others viewed the struggle to balance athletic training responsibilities with QI as a negative impact on the quality of the QI project stating, "I am severely overloaded and do not have time to do QI justice" (Educator 10). People (e.g., ATs, administrators) were also reported to be essential for successful QI implementation; specifically, enlisting QI team members and advocating for additional resources. Participants perceived that they would face resistance from colleagues and administrators with poorer attitudes towards QI due to lack of buy-in and organizational support. A secondary school respondent shared, "some reservations that I have are push back from administrators AND [sic] the time dedicated to collecting data" (Clinician 9, secondary school setting). An educator felt that "…getting other staff members to participate/contribute, administrative acknowledgement of the time/resources needed to do it well" (Educator 12) would be sources of resistance to implementing QI in their practice.

Alternatively, participant's direct attitudes and perceptions towards QI were also a factor in creating buy-in for intention as well as their ability to use QI. Respondents from non-traditional settings, like education and hospital or clinic settings, perceived that QI does not apply to their practice or that they did not have a role in developing QI projects. For example, an AT employed by a hospital reported, "...I am employed by a hospital. I had to take a 60 minute training on hand washing. They don't want to hear from me about QI" (Clinician 18, clinic/hospital setting). Some athletic training educators were unsure how to adapt QI in an academic setting, wondering, "My work setting is not clinical practice so

how do I conduct a QI project" (Educator 13); whereas other educators felt QI was more relevant to students than faculty, stating, "I am in education. So I don't have patients. But we are incorporating QI into our curriculum so our students need to be able to access data to make decisions" (Educator 14).

Benefits of QI

The second theme, benefits of QI, described the reasons for which participants supported implementing QI into athletic training practice. In contrast to participants who hesitated to bring attention to areas for improvement, these participants embraced opportunities for growth stating that "It could give us focus points and directives on improving" (Clinician 17, collegiate setting). The value and improvements were more specifically described by participants through two sub-themes: *outcomes*, and *organizational improvements*. Outcomes related to either patient encounters or improving upon personal clinical practice weaknesses, supported by one participant who stated that "[QI] would benefit both employee outcomes and patient outcomes" (Clinician 23, clinic/hospital setting). Nearly all participants reported that one of the most significant benefits of implementing QI were "better" or "improved" patient outcomes and care.

Many participants also recognized the benefit to individual clinicians to "Show value and deficiencies that may need improvement" (Clinician 22, collegiate setting) and "Should be specific to my deficiencies" (Clinician 21, secondary school setting). Many participants also believed that QI would more holistically promote clinician well-being through "Enhanced decision making. Maybe even reducing the feeling of overwhelm that the staff can have when we get busy" (Clinician 12, collegiate setting), "improved life balance" (Educator 9), and a "better work environment" (Educator 10). Additionally, QI was believed to show value as an organization or athletic training staff (i.e., "we") through "notable growth as a sports medicine team and what we can provide as a university" (Clinician 19, collegiate setting) and "We could identify wasteful healthcare practices or weak spots in communication" (Clinician 25, clinic/hospital setting). These examples support the second subtheme, organizational improvements, which related to improving macro-level systems (e.g., efficiency, documentation) or influencing practices across employees (e.g., effective communication). Efficiency was the most cited aspect of athletic training practice that would benefit from QI projects. For example, one participant predicted that an "increase in communication, documentation, and patient care" as benefits of QI (Clinician 15, secondary school setting).

Impact on the Profession

The final theme, impact on the profession, described the overall attitudes towards QI in regard to the profession of athletic training. Two sub-themes, *positive impacts* and *negative impacts* were revealed by participant responses. The participants that perceived positive impacts noted that QI has the potential to "improve the outcomes of almost everything" (Clinician 20, professional sports), including patient and clinician outcomes, the reputation of athletic training, and professional growth opportunities. Improved patient and clinician outcomes due to QI was consistently noted as a significant positive impact on athletic training by respondents, as illustrated by an athletic training educator, "I think we all strive to be outstanding clinicians and provide optimal patient outcomes. QI projects should help us meet these goals" (Educator 2). Positive impacts from QI were also related to the profession as a whole and athletic training's place in healthcare by "legitimizing the profession," (Educator 7) and "elevat[ing] professional status/respect" (Educator 6). Finally, QI was perceived to create professional growth opportunities for individual ATs, organizations, and the

profession because QI "gives language and process to continuous improvement and forward energy" (Manager 1, industrial setting). These professional growth opportunities supported by QI projects were noted as important because the outcomes may lead to increased resources, organizational support, improved patient care, and better provider well-being.

However, some participants believed that QI may have a negative impact, specifically placing unnecessary stress on clinicians who may already be overworked and burned out. These participants reported that QI projects would create a burden on ATs by "add[ing] more work that isn't needed" (Educator 3), further consuming their limited time, and distracting from primary athletic training responsibilities. Two participants expressed these concerns as "shift[ing]...us…from physically doing our hands on job to provide coverage to creating, gathering, analyzing, and making ATs more research-oriented than service/health care-oriented" (Clinician 4, secondary school setting) and "it will bog down the regular workday and add yet another administrative task to a busy schedule" (Clinician 25, clinic/hospital setting).

DISCUSSION

The athletic training profession is constantly working to increase the reputation and value of ATs within the realm of healthcare. Advancements in athletic training have often been initiated through professional development directives and cultural shifts. One example we may look to is the introduction of evidence-based practice (EBP). Within the past 10 years, EBP has progressed from a concept to a key component of athletic training practice. This may be attributed to the work of the Strategic Alliance prioritizing EBP within educational standards, CPC, and ongoing research. Similar to EBP, quality care and improvement have emerged as essential elements of healthcare, thus reaching yet another critical point for growth and culture shift in the athletic training profession. Parallels can be drawn between literature on the integration of EBP into athletic training professional requirements and our research on QI through the lens of behavioral change.[11-13] The TPB states that positive attitudes, appreciation of subjective norms, and perceived control are necessary for behavior change.[8] For instance, past research concluded that although knowledge about EBP among ATs was low, they valued EBP as moderately to extremely important and their attitudes towards EBP were generally positive.[11-12] Our exploration of ATs' knowledge and attitudes towards QI yielded parallel findings. In addition, perceived barriers for the majority of respondents towards EBP included time which was also a finding for the implementation of QI.[12]

Attitudes towards the Behavior

The first TPB construct needed to develop behavioral intention is a positive attitude. Our findings showed that participants demonstrated overwhelmingly positive attitudes towards QI in clinical practice, which are consistent with attitudes towards QI among post-professional athletic training students.[14] Participants with positive attitudes towards QI believed that integrating it into their workflow would result in improved patient and clinical outcomes as well as other stakeholders in non-traditional settings (e.g., students). These expected outcomes are supported by literature across healthcare professions.[15-16] The positive attitudes and expectations reported among participants may generate momentum and buy-in for using QI in clinical practice. Consistent with the TPB, cultivating positive attitudes are foundational to initiating behavior change.[8,9] Although the overall importance of QI to improve patient and clinical outcomes still was recognized, some participants demonstrated less positive attitudes towards QI when in the context of

their own practice. For example, some participants who identified as athletic training educators agreed that QI was critical to expose athletic training students to, but they seemed doubtful about QI's place in their personal practice. Additionally, some participants reported negative attitudes towards QI because they believed that it would create more burden on them than any noticeable benefits.

Subjective Norms (Social Influences)

A "culture of QI" has been described as the "values, beliefs, and norms...that shape the behaviours [sic] of staff in pursuing QI."[17(p.16)] This shared culture is an influential factor on multiple levels, including the professional organization and the individual institution or staff. In athletic training, professional influencers include the governing bodies and members of the Strategic Alliance, which have significantly impacted the path to QI to become an adopted value and norm. For example, in addition to the proposed changes to the BOC CPC reporting structure, the CAATE integrated QI into educational standards with the thought that education drives change in the profession.[3] Similarly, athletic training research and professional development are promoting QI through dissemination of QI-related literature, establishing a new manuscript category for QI in professional journals, and including QI presentations into CPC programming.[15-16] This culture of QI at the organizational level is recognized by some of our participants as a positive influential factor, thereby endorsing the behavioral intention of ATs to adopt QI because it may enhance the reputation of athletic training among peer professions. Many participants also anticipated more direct benefits from QI, including optional patient outcomes, increased job satisfaction and better work environments for clinicians, as well as organizational improvements, such as efficiency and advocacy for resources. These shared values would positively influence the integration of QI into staff and institutional culture or practices. Additionally, participants identified that QI may guide the professional growth of individuals and organizations by discovering and prioritizing areas for improvement, which is consistent with the literature supporting QI implementation in AT.[15]

However, some ATs expressed concerns that others within their local system may resist changing the organizational culture in favor of QI. The perception of ATs that QI may not be valued by their peers or superiors may be a possible barrier to the necessary positive social influences and development of subjective norms.[15-17] Additionally, several participants worried that shifting the culture and norms of athletic training to reflect QI mandates could be burdensome for ATs who may already be overworked or burned out. From this perspective, although a directed culture shift may drive the influence of subjective norms towards intention, it may also negatively impact the AT's attitude or reduce perceived control.

Perceived Behavioral Control

Perhaps the most critical piece of the TPB is perceived control, especially for behaviors in which the person may not have full control (e.g., a mandate) or experience limited actual control.[8] Context is also important to perceived control, which asserts that a person is more likely to intentionally adopt a behavior if they recognize the presence and understand the influence of facilitators and challenges.[6,15-17] Participants expressed many concerns that would make implementing QI too difficult, such as a lack of resources for adoption or a setting ill-suited to a QI project. The BOC open comment period insights included priorities for the CPC final design, such as "number of CEUs, affordability, time requirements, and customization to practice settings."[18(p.10)] These reported insights from ATs are consistent with our findings acknowledging perceived lack of resources and applicability to non-clinical or non-

traditional AT settings. For example, the context of setting can be applied to our findings that despite the potential CPC requirement to implement QI into practice, some ATs believed QI would be impractical or irrelevant in their setting. This belief creates a decreased sense of ability, or actual control, to use QI.

A majority of ATs surveyed appeared to lack perceived control in terms of resources, reporting that there were too many pragmatic challenges to overcome. Commonly reported challenges included limited available or dedicated resources and capacity of the QI team members. Overwhelmingly, ATs were apprehensive about QI because they believed that they did not have the time to dedicate to a QI project since their time was consumed by patient care and other responsibilities. Available personnel or human effort (i.e., self, colleagues, administrators) was another cited concern due to a lack of buy-in and capability needed to create an effective QI team. Several QI frameworks discuss the need for QI team members to be knowledgeable and skilled in the QI process.[15-17]

Most participants reported not feeling knowledgable enough about the concept of QI or the process to implement it. Funding was another limited resource that participants reported as a barrier to perceived control, particularly as money is a resource under the control of administrators and not the AT. Interestingly, these perceptions regarding a lack of resources, and therefore, a decreased ability and intention to use QI, could also be linked to the lack of knowledge about QI. Although the barriers to time, money, and other resources genuinely exist and are valid concerns, they do not necessarily need to equate to a barrier to QI implementation in athletic training practice. Improving knowledge about QI and providing strategies to be creative and resourceful may positively reshape an AT's perceived control and lead to behavioral intention. While many processes and tools for QI have been defined[19], there are no expectations or boundaries in regard to setting, topic, or level of complexity; a successful QI project need only be a small, but meaningful, change.

LIMITATIONS AND FUTURE RESEARCH

This study was designed to coincide with the timeliness of the BOC's CPC to explore this phenomenon in athletic training. As such, data was collected over a brief but specific moment in time, and thus, had several limitations. First, social media platforms were used to recruit participants. Although social media can be used to reach a broad population in a timely manner, the subject pool may be limited as not all ATs use social media or are members within the specific social media group used to recruit for this study.[20] Future research should expand recruitment strategies to reach a broader sampling of ATs and should explore strategies to shift the culture of QI in athletic training practice. Additionally, lengthening the data collection window may provide increased opportunities for participants to respond as well as allow for recruitment reminders to potentially increase the response rate.

CONCLUSION

This study is an essential first step in understanding successful integration of QI into athletic training through the lens of the TPB behavior change model, which has become an increasingly common framework in athletic training research.[21-25] These constructs may be used to predict an AT's intention to engage in QI and more effectively target future efforts. Our findings suggest that ATs may have successfully taken the first step as participants demonstrate generally positive attitudes towards QI. The second factor, subjective norms, appears to support QI implementation due to the attention from and directives by professional governing bodies; however, at institutional and interpersonal levels, many participants believed that peers and administrators may

not support the use of QI. Finally, perceived control, which often acts as the direct precursor to behavioral intention, is lacking among ATs and should be emphasized in future research and initiatives. Our findings support that these factors may play an important role in QI implementation in athletic training. In particular, participants reported needing more expertise about QI and the process. Past research proposed strategies, such as increased resources for implementation, focused workshops, peer mentorship, and repetitive exposure to shift the culture of athletic training towards EBP.[13] Based on reports from participants needing additional information on QI, these same initiatives may be successful if applied to the integration of QI projects into CPC. In conclusion, professional organizations and regulatory agencies may consider attitudes, subjective norms, and perceived control of ATs as they continue to promote the integration of QI into athletic training culture.

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