



FAMILIARITY WITH OCCUPATIONAL HEALTH CORE COMPETENCIES AMONG ORTHOPEDIC PHYSICAL THERAPISTS

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Abstract:

Background: The purpose of this study was to assess current physical therapists' familiarity with occupational health core competencies in the outpatient physical therapy setting. **Methods:** One hundred and sixty-six orthopedic physical therapists in the United States completed the survey that assessed the familiarity of occupational health core competencies of outpatient physical therapists. This survey was developed based on occupational health core competencies developed through a modified delphi process the year prior, which included: (1) Total Worker Health, (2) Ergonomics, (3) Functional Capacity Evaluations, (4) Functional Job Analysis and Employment Exams, and (5) On-site Injury Triage. Likert scales were used with 95% confidence intervals. **Results:** Overall, identification of poor postures, poor lifting mechanics, and jobs requiring significant amounts of repetitive motions (Likert mean = 4.40) and identification of musculoskeletal disorders in the workplace (Likert mean = 4.20) had the highest level of familiarity. In terms of On-site Injury Triage, the understanding of OSHA recordable injuries and how physical therapists can alleviate these injuries in the workplace (Likert mean = 2.40) had the lowest level of familiarity. **Conclusions:** This study is the first to establish the familiarity among outpatient physical therapists on the core competencies needed by entry-level physical therapists graduating from professional degree programs in the United States to practice competently in occupational health. Ergonomics was the most familiar core competency and on-site injury triage was the least familiar core competency amongst orthopedic physical therapists.

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1. Introduction

Occupational health is a rapidly growing field in physical therapy; therefore, orthopedic physical therapists must be aware of and familiar with the occupational health core competencies [1]. This study is the first to establish the familiarity among outpatient physical therapists on the core competencies of occupational health. The core competencies are (1) Total Worker Health, (2) Ergonomics, (3) Functional Capacity Evaluations, (4) Functional Job Analysis and Employment Exams, and (5) On-site Injury Triage. On a 5-point Likert scale using the following scale, (1) Not at all familiar, (2) Slightly familiar, (3) Somewhat familiar, (4) Moderately familiar, (5) Extremely familiar, orthopedic physical therapists rated their familiarity of the occupational health core competencies.

The core competencies assessed in this study were identified in a previous survey by physical therapists who specialize in occupational health. To understand the current study, it is important to recognize the significance of each core competency. According to Newman *et al.*, “*Total Worker Health is a framework defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness-prevention efforts to advance worker well-being*” [2]. This core competency emphasizes the role of physical therapists in addressing and preserving the health of a worker overall, including preventing injury and illness before they occur. The components of total worker health assessed in this study were leadership commitment to health and safety, ensuring confidentiality and privacy of workers, integration of programs to enhance worker well-being, understanding OSHA, and CDC and on-site wellness and health promotion programs.

Another core competency is ergonomics, defined as “*the study of aligning the needs of a job with the ability of the worker and work environment to provide the most efficient workspace possible while simultaneously reducing the risk of injury*” [3]. This competency also recognizes the unique role physical therapists have in preventing injuries before they occur, specifically by addressing the efficiency of motion for work tasks and workplace set-up. The components of ergonomics in the current research included understanding job descriptions for a specific job task, breaking down and being competent in evaluating a task analysis, identifying poor postures, lifting mechanics and jobs requiring significant amounts of repetitions, screening and assessment of MSK injuries occurring at a workplace, summarizing workplace risks and developing a reporting system for employers to understand risks and associated costs, and finally understanding office ergonomics and workplace sets-ups.

In the current survey, the participants report their familiarity with the following components of functional capacity evaluations: medical records review, intake interview, physical examination, functional testing, and reporting results for work ability. One workplace health researcher explained that the significance of functional capacity

evaluations is that *“One can use an FCE (Functional Capacity Evaluation) to develop a treatment program, to measure the physical abilities of patients before and after a rehabilitation program, to modify a rehabilitation treatment, to evaluate whether an injured worker can work, and to determine when he/she can return to work”* [4]. Physical therapists have the ability not only to conduct an FCE but to utilize the data to drive treatment choices for optimal worker care.

The components of the fourth core competency, functional job analysis and employment exams, are the following: job description versus functional job analysis, essential versus marginal job functions, job demands, pre-employment examinations, post-offer examinations, and periodic physical testing and RTW examinations. In a study by Schaafsma *et al.*, they indicated that *“Pre-employment examinations that are specific to certain job tasks or health risks may, in theory, be effective in reducing occupational disease, injury or sick leave, by either denying the job, or by adequately mitigating the job risk on the health of the worker”* [5]. Through job analysis and employment exams, physical therapists can compare what a job requires with the abilities of the potential employee to promote safety and understanding of job requirements.

The last core competency within the survey is on-site injury triage. The components of the competency within the survey were: the role of a physical therapist under OSHA First-Aid and why we are qualified to provide on-site injury screening, direct-access/ physical therapy screening on-site, understanding the process of OSHA recordable injuries and how PTs can drastically reduce the number of recordable injuries, costs saving on direct, in-direct, and total costs of injuries and how PTs can save companies substantially by reducing OSHA recordables for companies, and how physical therapists keep workers working even after injury at work. In a study done to assess the usefulness of on-site physical therapy-led triage services to musicians, the researchers found that *“on-site services for musicians may facilitate better injury management by providing immediate and specific health advice”* [6]. Physical therapists working on-site can provide immediate care to workers; in conjunction with adhering to OSHA standards, they are able to help establish an optimally safe workplace experience.

Despite its significance in the workforce and medical field, occupational health is a topic that has yet to be fully understood by many orthopedic physical therapists. One occupational health researcher explains that *“For many Physical Therapists, this may seem a ‘new’ field, but physical therapists have been intimately involved in the prevention and management of work-related injuries for over 70 years”* [7]. The current research examines physical therapists' awareness and education on occupational health and how they perceive their role in this specialty area. Occupational health is often thought as poor workplace ergonomics and biomechanics while completing work tasks. Orthopedic physical therapists may not be familiar with functional capacity evaluations, post-offer employment testing, job analysis and injury risk analysis, on-site physical therapy, in-clinic physical therapy, as well as ergonomic evaluations [8]. It is essential to examine all the stakeholders involved in occupational health to further understand its significance. The patient and the physical therapist, employers, insurance companies, physicians, case

adjustors, and case managers are all stakeholders in occupational health [8]. Aside from stakeholders, there are also direct and indirect costs associated with occupational health. Direct costs are medical costs, indemnity costs, legal fees, and out-of-pocket expenses related to the claims. Indirect costs include lost time or work stoppage costs, hiring and training a replacement worker, overtime costs, and time spent by company management handling different claims for workers. These indirect costs are typically two times greater than direct costs in a worker's compensation claim and on average, an employer pays \$300-\$400 a day for a single employee to be out of work [8]. Increasing familiarity with all of the core competencies involved in occupational health will help equip physical therapists to understand their role in occupational health, provide workers with the highest level of care, positively impact the stakeholders and decrease direct and indirect costs.

The purpose of the current research was to understand the familiarity of occupational health among orthopedic physical therapists, identify which components of occupational health that are less familiar among orthopedic physical therapists, and bring awareness to orthopedic physical therapists about the importance of occupational health and how it can be implemented into a plan of care.

2. Methods

2.1 Participants

Participants in this cross-sectional study to assess familiarity with occupational health core competencies were members of the Academy of Orthopedic Physical Therapy (AOPT) of the American Physical Therapy Association (APTA). Approximately 16,500 physical therapists in the AOPT were invited via email to complete an electronic survey administered via Qualtrics. From the email invitation, one hundred and sixty-six physical therapists agreed to participate in the study. The participants in this study had 11.4 ± 10.7 years of clinical practice with 60% of the participants actively treating in an occupational health setting.

2.2 Survey Development

The questions in this survey were developed from a previous survey study the year prior designed to establish the occupational health core competencies through a modified delphi process. The occupational health core competencies included: (1) Total Worker Health, (2) Ergonomics, (3) Functional Capacity Evaluations, (4) Functional Job Analysis and Employment Exams, and (5) On-site Injury Triage.

2.3 Procedure

Participants were asked to indicate their familiarity with the occupational health core competencies on a 5-point Likert scale using the following scale: (1) Not at all familiar, (2) Slightly familiar, (3) Somewhat familiar, (4) Moderately familiar, (5) Extremely familiar. In order to determine the competencies that were most familiar, Likert scale

scores were converted to rescaled raw index scores on a 0-1 with 95% confidence intervals. Data regarding participants' practice setting, primary area of clinical and/or research expertise, organizational position, degree(s), years of experience, and geographic region also will be collected on the survey. The survey, however, was completed using Qualtrics in order for the participants to maintain their anonymity.

3. Results

Five general categories for requisite skills were included in the survey based on core competencies developed, all of which were validated and determined to be essential skills for entry-level physical therapists practicing in an occupational health setting. Out of 166 participants, 125 (75.3%) are working 0-25% of the time in an occupational health setting and 120 (72.0%) had a doctorate in physical therapy. Overall, the following were ranked in terms of familiarity, with the most familiar to least familiar among participants (average index scores and confidence intervals to follow skill): Ergonomics 0.72 (0.69, 0.76), Functional Capacity Evaluation 0.57 (0.52, 0.63), Total Worker Health 0.52 (0.48, 0.56), Functional Job Analysis and Employment Exams 0.48 (0.43, 0.53), and On-site Injury Triage 0.41 (0.36, 0.46). In terms of Ergonomics, identification of poor postures, poor lifting mechanics, and jobs requiring significant amounts of repetitive motions (Likert mean = 4.40) and identification of musculoskeletal disorders in the workplace (Likert mean = 4.20) had the highest level of familiarity. In terms of On-site Injury Triage, the understanding of OSHA recordable injuries and how physical therapists can alleviate these injuries in the workplace (Likert mean = 2.40) had the lowest level of familiarity.

4. Discussion/Conclusion

4.1 Purpose

The study's purpose was to assess how familiar orthopedic physical therapists are with occupational health's core competencies. The core competencies were developed from a previous study, asking physical therapists who specialize in this field to identify what core competencies an entry-level physical therapist should have to successfully practice in an occupational health setting. In this survey study, we decided to build on this information and find out how familiar current physical therapists, specifically those that specialize in orthopedics and practice in an outpatient setting, are with these core competencies of occupational health.

4.2 Explanation of Data

Of the five main areas of occupational health competency, the participants reported the most familiarity with addressing and assessing ergonomics. The question with the highest average rating of familiarity fell under ergonomics, specifically related to identifying issues with postures and lifting mechanics and recognizing jobs requiring significant repetition. The data also indicates high levels of familiarity with

understanding job descriptions for assessing job safety, task analysis, screening musculoskeletal injuries and workplace set-up. The high levels of familiarity among the statements related to ergonomics make sense with these skills since many orthopedic physical therapists perform them even if they are not working with injured workers. Ergonomics had the highest level of familiarity of the five categories among those who do not and among those who do treat injured workers. One literature review focusing on the role of physical therapists in promoting occupational health highlighted the growing burden of occupational injuries and noted that physical therapists are in a prime position to help this epidemic, specifically identifying their role in ergonomics [9]. Physical therapists recognize the importance of ergonomics as part of their role in promoting safety and health in their patients. The familiarity of the following categories- total worker health, functional capacity evaluations and functional job analysis- were not significantly different from each other but were significantly less than ergonomics.

The lowest area of familiarity among those who treat injured workers and those who do not was on-site injury triage. The question with the lowest average for all respondents was under the umbrella of on-site injury triage, suggesting many clinicians are not familiar with this component of occupational health. Specifically, the physical therapists were most unfamiliar with OSHA's process of recording injuries and the role of physical therapists in reducing these numbers. However, those who reported they work regularly with occupational health patients reported significantly greater familiarity with on-site injury triage than those who do not treat this population. On-site injury triage is an area of occupational health where many physical therapists do feel very familiar overall, suggesting this would be an area of education and training that would benefit many therapists, especially if they regularly treat occupational injuries.

The data suggests that physical therapists who regularly treat injured workers had a higher average score for familiarity in each of the categories than those who do not tend to treat injured workers. This finding makes sense, as those who tend to treat this population would be more familiar with the key components of occupational health. The greater the caseload of a therapist that is composed of treating injured works, the greater the familiarity with occupational health core competencies. However, there were minimal differences between 51-75% and 76-100% of the caseload, suggesting minimal differences in familiarity of a therapist treating injured works more than 50% of the time. These findings demonstrate that physical therapists who treat workplace injuries more frequently will be more familiar with occupational health core competencies since they are putting them into practice regularly. However, even the participants who reported treating injured workers demonstrated deficits in familiarity with each of the core competencies, especially on-site injury triage. These deficits in familiarity suggest a lack of uniformity of knowledge of the core competencies of occupational health among therapists who treat this population. As these competencies were identified by occupational health therapists, the understanding of them should be greater and more uniform across all therapists who treat this population.

Despite the small caseload of occupational health some therapists treat, the importance of understanding the core competencies of this area of physical therapy is demonstrated by the growing economic burden of occupational injuries as well as the personal toll it takes on workers and their families. One study on the socioeconomic impacts of workplace injuries found that the most common consequence of occupational health-related injuries in families was the need for other members of the family to be caretakers as well as \$40,000 in rehab costs, half of which were out-of-pocket expenses [10]. Although physical therapists play a significant role in promoting proper ergonomics and addressing occupational health issues, there are not a significant number of studies in this specialty compared to others, such as general musculoskeletal injuries and cardiorespiratory illness. Contributing to this lack of published studies is the limited number of physical therapists who specialize in the occupational health field, further demonstrating the importance of familiarity and practice in this area of physical therapy [11]. Whether a physical therapist treats patients specifically for occupational health or for workers' compensation cases, the therapist will treat people who work. As part of the holistic approach to the care required to help patients reach their recovery goals, physical therapists need to be familiar with the core competencies that provide guidance for ensuring workplace safety and health. The unique skillset of physical therapists places them in a significant role in promoting the well-being of the workforce.

4.3 Application/Clinical Implications

Occupational health is a rapidly growing field in physical therapy particularly within the outpatient orthopedic practice. Therefore, it is essential that orthopedic physical therapists are aware and familiar with the occupational health core competencies so that they can broaden their knowledge and patient population. This survey serves as a foundation to expand the knowledge of licensed physical therapists on occupational health competencies that they can use in their clinical practice. By increasing familiarity with the occupational health core competencies, outpatient orthopedic physical therapists will be better prepared in the clinical setting and workplace which will allow them to be more efficient when evaluating patients and providing the appropriate interventions to achieve the best outcomes for their patients.

4.4 Limitations of Study

There were some perceived limitations within this study that were evident after assessment. One limitation was the small sample size. One hundred sixty-six orthopedic physical therapists are not necessarily representative of all orthopedic physical therapists.

In addition to recognizing the gaps in physical therapists knowledge of occupational health, it is also important to consider that the identified occupational health competencies assessed in the survey may not be representative of the true competencies that physical therapists treating this population need to know. The previous survey used to identify the occupational health core competencies did not properly identify what

therapists need to know, which would explain the lack of familiarity with many of the concepts. Also, some of the competencies and definitions could have been confusing for the participants, inhibiting their ability to accurately rate their familiarity. The survey could have included more explicit definitions and defined key terms. Further surveys could be done to refine the competencies and their definitions to make further research like the current study clearer to participants.

4.5 Future Studies

While this study provided input on current orthopedic physical therapists' familiarity with occupational health, there are future studies that can be done to build off the results from the study. For example, it would be beneficial to educate physical therapists on areas where there were gaps in knowledge on occupational health and how physical therapists can impact others through this knowledge. This could be done by conducting lectures on occupational health in the clinic and workplace and providing pre- and post-assessments to objectively measure occupational health familiarity. Another future study would be to survey workplaces about familiarity with physical therapists and their occupational health roles. Workplaces should be more familiar with the role of physical therapists in preventing injuries in their work setting.

4.6 Conclusion

This study is the first to establish familiarity with occupational health core competencies among orthopedic outpatient physical therapists. These core competencies are needed for entry-level physical therapists graduating from professional degree programs in the United States to practice competently in the field of occupational health. For this reason, it is imperative that orthopedic outpatient physical therapists become familiar with the occupational health core competencies. Of the five core competencies, ergonomics was the most familiar, whereas on-site injury triage was the least familiar amongst orthopedic physical therapists. Overall, there are gaps in knowledge in occupational health, even amongst physical therapists who have a caseload of workplace injuries. This study highlights areas requiring education and awareness of occupational health to reduce direct and in-direct medical costs and treat this patient population competently.

Ethical Statement

This study was approved by the Institutional Review Board (IRB) at Lebanon Valley College.

Conflict of Interest Statement

The authors report there is no conflict of interest to declare

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Appendix

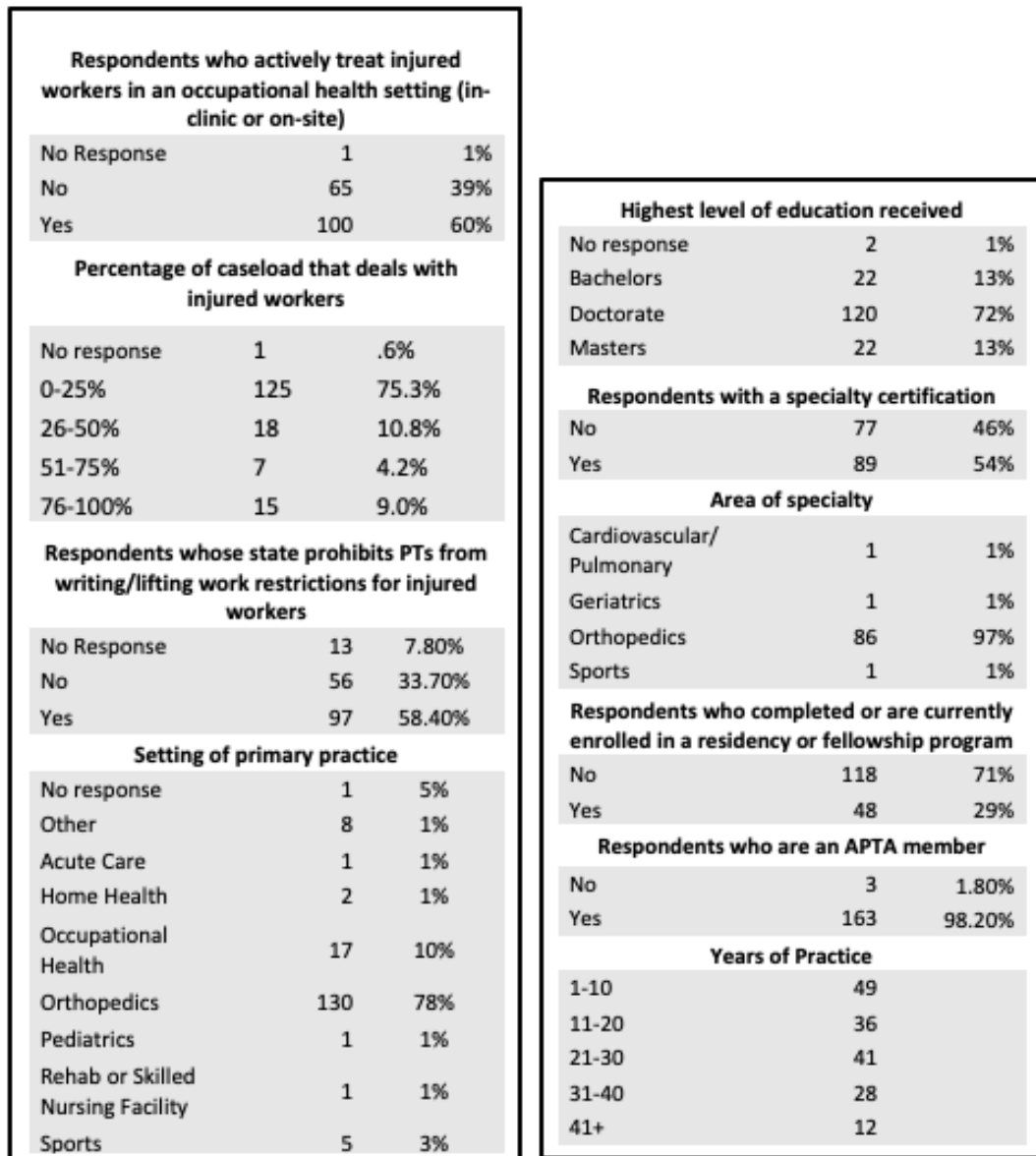


Figure 1: Demographics

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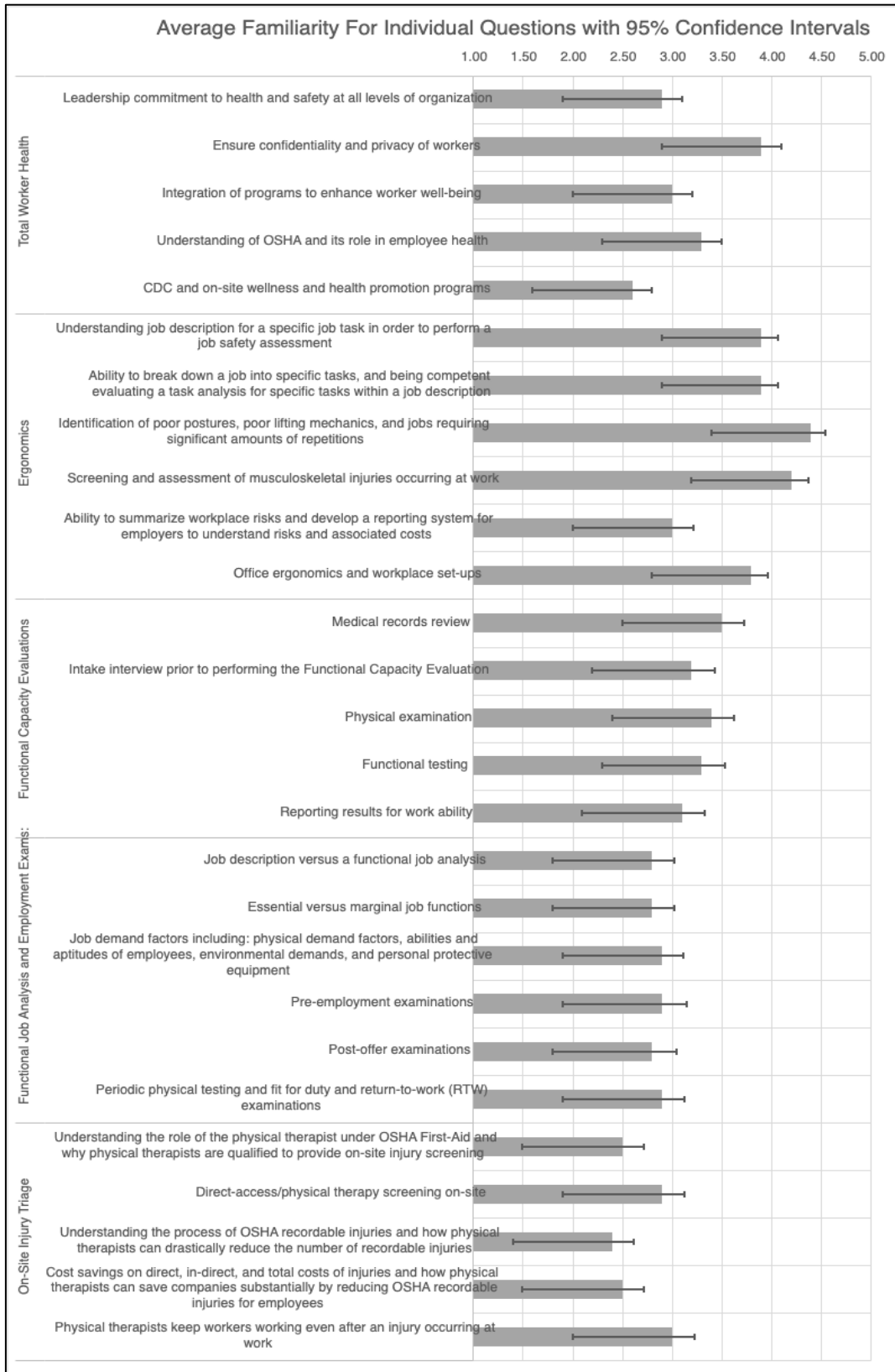


Figure 2: Average familiarity rating by question

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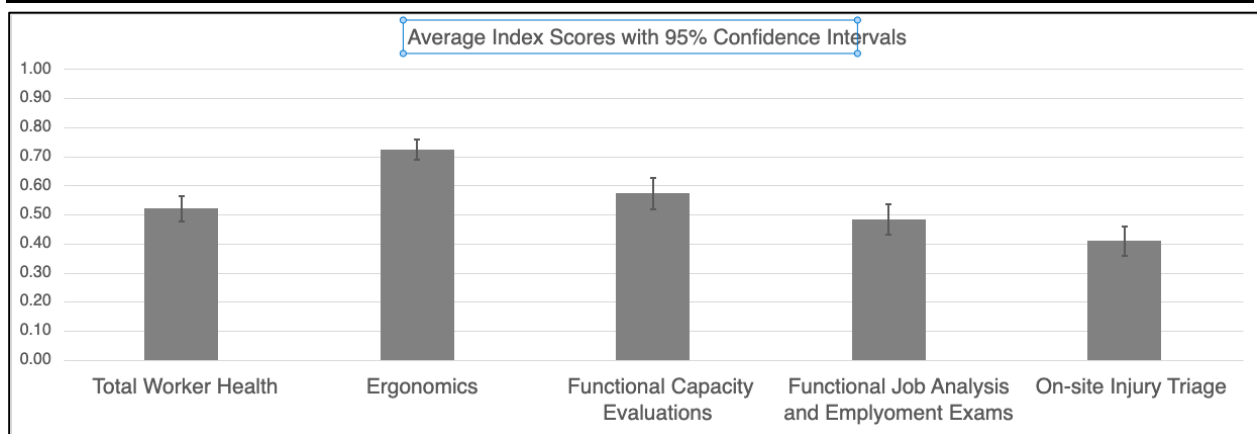


Figure 3: Average familiarity score by category with scores converted on a 0-1 interval scale



Figure 4: Average scores per category based on whether participants reported treating injured workers with scores converted on a 0-1 interval scale

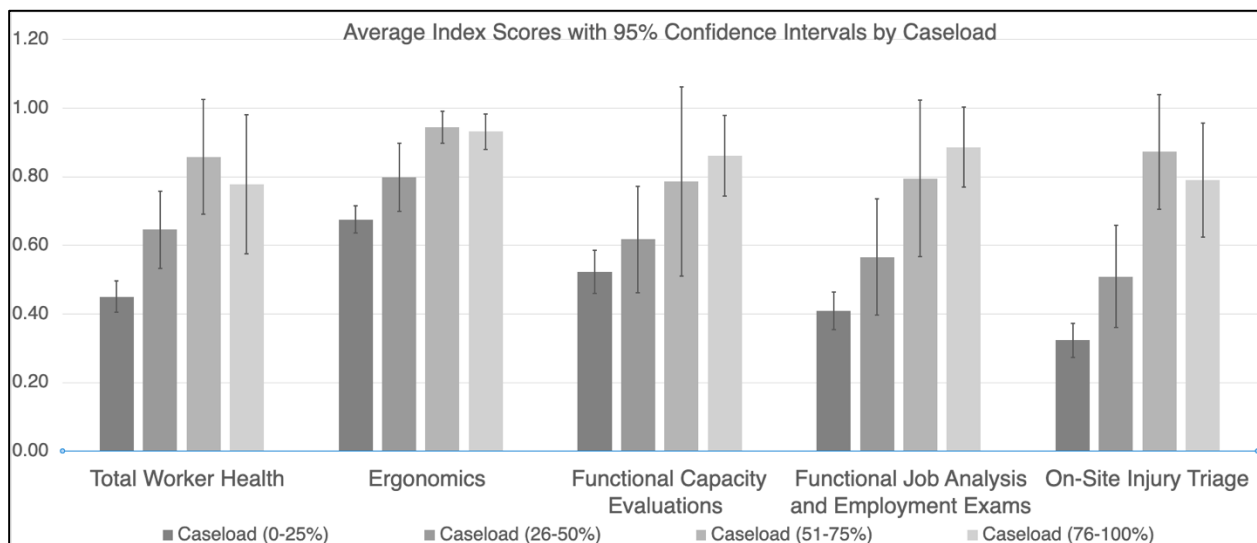


Figure 5: Average score by category based on percentage of caseload treating injured workers reported by participants with scores converted on a 0-1 interval scale

Table 1: Familiarity Question Results: Highest and Lowest Average Question (score out of 5)

2.4	Understanding the process of OSHA recordable injuries and how physical therapists can drastically reduce the number of recordable injuries
4.4	Identification of poor postures, poor lifting mechanics, and jobs requiring significant amounts of repetitions

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