Spring 5-2022

Occupational Therapy's Role in Music Student Health

Katie Ericsson
University of South Dakota, Katie.Ericsson@usd.edu

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UNIVERSITY OF SOUTH DAKOTA
SCHOOL OF HEALTH SCIENCES

Katie Ericsson, OTS & Allison Naber OTD, OTR/L, CLT-LANA

BACKGROUND

Musicians are a unique population that is at an elevated risk of obtaining a playing-related musculoskeletal disorder any pain, weakness, numbness, tingling, or other symptoms that interfere with a musician's ability to play their instrument at the level they are accustomed to" (Zaza et al., 1998). Studies have found a PRMD prevalence ranging between 62% and 93% among musicians (Kenny & Ackermann, 2013 & Kok et al, 2016). The actual figure may be even higher because there is evidence that musicians underreport injuries due to a fear of jeopardizing their career prospects (Ackermann, 2010; Rickert et al., 2014).The University of South Dakota Department of Music is accredited by the National Association of Schools of Music (NASM). In 2011, NASM ratified health and safety standards requiring schools of music to inform students about health concerns related to music performance. However, there is no direct oversight from NASM that guides implementation of the standards and "specific methods of providing information and addressing injury prevention […] are the prerogative and responsibility of the institution" (NASM, 2021, p.67). Currently, the University of South Dakota's Department of Music does not have a formal method for delivering information concerning health promotion and injury prevention to music students (A. Laursen, September 11, 2021).

PURPOSE

The purpose of this capstone experience was to explore the role of occupational therapy in addressing university-level music students' playing-related musculoskeletal disorders. Three approaches (research study, clinical practice, and departmental collaboration) were used to complete this capstone project since the project focused on both education and clinical practice.

THEORETICAL FOUNDATION

Occupational Adaptation

A key feature of the Occupational Adaptation perspective is the merging of the constructs of occupation and adaptation into a single interactive construct (Schkade & Schultz, 1992). This single interactive construct is represented by the occupational adaptative process. The occupational adaptive process is the core dynamic of the model due to the interaction between an individual's desire for mastery and the occupational environment's demand for mastery (Schkade & Schultz, 1992).

There are three subprocesses within the occupational adaptive process: the adaptive response generation subprocess, the adaptive response evaluation subprocess, and the adaptive response integration subprocess (Schkade & Schultz, 1992). Through these subprocesses, an individual can plan an adaptive response, evaluate the outcome, and integrate the evaluation as an adaptation if the individual deems it to have improved occupational performance. These subprocesses describe an individual's adaptive capacity. The occupational adaptive process was used to guide my IRB study and ensured the project provided holistic, client-centered, and occupation-focused care (Schkade & Schultz, 1992; Schultz & Schkade, 1992).

This holistic model of practice aligns well with the current research that supports the use of holistic, client-centered, and occupation-focused care of musicians (Guptil, 2014; Wolff & et al., 2021; Yang et al., 2021). The primary goal of my project was to determine the role of occupational therapy in addressing PRMDs experienced by USD music student volunteers.

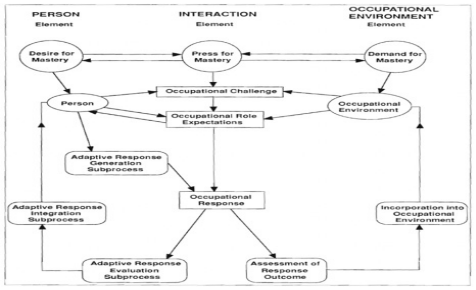

Figure 1. The Occupational Adaptation Model of Practice. Taken directly from published work. Schkade, J. K. & Schultz, S. (1992). Occupational Adaptation: Toward a holistic approach for

METHODS

- **IRB Study**

A quasi-experimental one-group pretest/posttest design was conducted during the Spring 2022 semester. The initial musculoskeletal music performance assessment consisted of completing the following: consent forms, a 360-degree video of each volunteer playing their instrument during a slow, easy segment of music as well as while playing instrument during a fast, challenging segment of music, the performing arts module of the Disabilities of the Arm, Shoulder, and Hand (DASH), a semi-structured interview to learn about playing history and playing habits, and an occupational adaptive response evaluation to assess satisfaction with occupational performance, occupational adaptive capacity, and playing-related pain. The exit assessment consisted of the performing arts module of the Disabilities of the Arm, Shoulder, and Hand (DASH) and the occupational adaptive response evaluation.

Intervention sessions were conducted in the Sanford Coyote Sports Complex and were tailored to each volunteer's specific needs and included kinesiology taping, trialing of adaptive equipment, and education regarding body awareness, ergonomics, exercises, and behavioral habits that can reduce risk of PRMDs. Volunteers attended weekly or biweekly occupational therapy intervention sessions over the course of four weeks. The data obtained from the initial assessments and the exit assessments was then entered into an Excel spread sheet for later analysis in IBM's Statistical Package for the Social Sciences (SPSS Statistics) for Mac version 25 (IBM, 2021).

- **Clinical Practice**

Each week, I spent one full day at Prairie Rehabilitation in Sioux Falls, SD with Tim Myers, OTR/L. Prairie Rehabilitation is an out-patient clinic offering Occupational Therapy (OT), Physical Therapy (PT), and Speech-Language Pathology (SLT) services. Each day I kept a log of the patients I saw, and the assessments or interventions completed with each patient.

- **Department of Music Collaboration**

I completed a strengths, weaknesses, opportunities, and threats (SWOT) analysis with the participating music faculty to better understand their perceptions surrounding musician's health and the degree to which USD's Department of Music addresses musician's health. I also conducted a larger departmental survey of Music faculty to gauge interest in addressing musician's health as well as a brief check-in survey with participating Music faculty.

I interviewed Dr. Kris Chesky, Dr. Christine Guptil, and Dr. Janice Rocker as they h aall have experience working with music programs to address musician's health topics. I synthesized information from the SWOT analysis, surveys, and interviews informed the creation of a proposal for future engagement between the OT and Music programs.

RESULTS

- **IRB Study**

Twelve USD music students volunteered to participate in the study. There were four females, three males, and five non-binary individuals. Within that population, there were four cello players, three double bass players, two French horn players, and three clarinet players. Ten volunteers reported playing more than one instrument and the remaining two volunteers reported being USD chamber singers in addition to playing their primary instrument. Pre and posttest data reflected reports of playing-related pain, identification of pain sites on the body, and descriptors for pain. Thirty-minute intervention sessions with volunteers were tailored to each volunteer's specific needs and included kinesiology taping, trialing of adaptive equipment, and education regarding body awareness, ergonomics, exercises, and behavioral habits that can reduce risk of PRMDs. A full discussion of the results of my research study were reported in a manuscript for publication. However, pretest-posttest data analysis revealed changes in reports of playing-related pain, intensity of pain, number of locations pain and descriptors of pain. Correlations were also reported in occupational adaptive capacity and reduced pain and DASH scores.

- **Clinical Practice**

I was able to complete over 50 sessions with patients over the course of my time at Prairie Rehabilitation. I was able to treat patients with post-operative rotator cuff repair, post-operative wrist arthroplasty, post subcutaneous tenotomy, proximal humeral fracture, frozen shoulder and/or undefined shoulder pain, lateral epicondylitis, thumb CMC OA, displaced rib, and post CVA. Many sessions included hands-on manual therapy techniques such as edema control, joint mobilizations, nerve glides, and muscular and fascial release. I also continued to develop my physical agent modalities and splinting skills.

DISCUSSION & CONCLUSIONS

- **IRB Study**

I was specifically interested in exploring the role of OT in addressing music students' health concerns. Studies that specifically address the role of OT in treating musicians have emphasized using an occupation-based and client-centered approach in assessing and treating musicians (Guptil, 2014; Ting & Rocker, 2019; Villas et al., 2019; Wolff et al., 2021). This study implemented an occupation-based and client-centered approach by providing individualized OT services to the volunteer music students. Data analysis resulted in decreased playing-related pain and increased awareness of the music student's occupational adaptive capacity. These results are encouraging and highlight the dramatic impact just a few occupational therapy sessions can have on a music student's health.

- **Clinical Practice**

Clinical practice focusing on assessment and treatment of upper-extremity and ergonomic conditions is essential when treating music students. In their study of orchestra musicians, Gasenzer et al. (2017) found that "the most frequently reported localizations of pain were back (70%), shoulders (67.8%), neck (64.1%), hands and wrists (39.8%). Occupational therapy can not only address the musculoskeletal issues impacting music students, but also can provide essential education on ergonomics, injury prevention, health promotion, and psychosocial well-being (Ting & Rocker, 2019). My clinical experience at Prairie Rehabilitation included hands-on manual therapy techniques such as edema control, joint mobilizations, nerve glides, and muscular and fascial release. These skills were employed during my work with the music students.

- **Department of Music Collaboration**

The SWOT analysis, Department of Music faculty survey, and interview results from scholars who have completed similar projects emphasized a major barrier to moving forward is that some music educators do not feel they have time to address musician health concerns with their students. Other music educators are reluctant due to a lack of knowledge regarding health concerns. Since PRMDs can have devastating long-term effects, it is important for USD's Department of Music to begin integrating musician health topics into their curriculum. The Department of Occupational Therapy can assist the Department of Music in this endeavor through the recommendations outlined in my proposal for future engagement.

RESULTS

- **Department of Music Collaboration**

A five-question survey was created in order to gain more information that would result in key themes to address in my proposal for future engagement between OT and Music Departments. Five out of the 26 recipients responded to the survey. I was able to determine three main themes or conclusions from completing the survey: 1. The majority of Music faculty are either too busy to consider or uninterested in the topic of musician's health. 2. There is a need to identify strategies that will grow interest in musician health topics within the Music Department. 3. The survey respondents see the value in addressing musician's health topics with their students and would be interested in a workshop addressing musician's health-related to neuromuscular skeletal health and mental health.

My interviews with scholars who have completed similar research emphasized the fact that many music educators believe pain is a normal part of life as a musician and are dismissive of the need to address performance-related health issues with their students. The interviewees noted that in addition to a lack of direct support from healthcare professionals, music students face other barriers to addressing health concerns such as extremely busy schedules and a reluctance to seek out medical treatment because they don't want to hear that they need to stop playing. Interviewees offered strategies to promote interest: meeting with leaders in the Department of Music as well as the College of Fine Arts, identifying ways that the partnership can serve both the OT and Music programs, and hosting informal events at USD's Department of Music.

The proposal for future engagement between USD's OT and Music programs was presented on April 5th to the Dean of USD's College of Fine Arts as well as all Department of Music faculty. The proposal emphasized the need for addressing performance-related health issues impacting USD music students and offered the following recommendations: identify 1-2 faculty within each department who can serve as the liaisons for ongoing engagement between the departments, establish OT led workshops addressing musician's health at the Department of Music, normalize of discussion of PRMDs, instrument warm-up, and body scanning within the music student population, add Department of Music faculty and students as clients for the OT student service-learning clinic.

IMPLICATIONS FOR OCCUPATIONAL THERAPY

This capstone project indicates that a variety of approaches must be taken in order to holistically address music student health. Direct OT services may help to reduce the risk and occurrence of music students' playing-related musculoskeletal disorders (PRMDs). In order to address PRMDs, an OT must have a strong background in ergonomic and upper-extremity assessment and treatment. Finally, OT work with music students must be supported by the music faculty in order to have a lasting impact.

- **IRB Study**

The Occupational Adaptation model of practice is useful when providing OT services addressing music students' PRMDs as it empowers music students to learn how to adapt their occupational environment in order to improve occupational performance and promote ongoing occupational participation in music performance. Future research is needed to confirm the study's results. Future studies should have a larger cohort and include a control group.

- **Clinical Practice**

OTs with expertise in working with upper-extremity conditions and ergonomics can play an important role in addressing music students' PRMDs as many PRMDs present as upper-extremity conditions and arise from ergonomic issues. The specialized skills I developed as a result of my clinical practice experience allowed me the opportunity to assess and treat a variety of upper-extremity and ergonomics conditions.

- **Music Department**

Leadership in the Department of Music supports ongoing engagement between the OT and Music programs. This support will facilitate future opportunities for the OT and Music programs to collaborate. Ongoing engagement will allow future OT students the opportunity to advocate for OT to music faculty and students. Ongoing engagement will also allow the Department of Music to ensure they are addressing NASM health and safety standards.

REFERENCES