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Factors influencing the use of aquatic therapy: an occupational perspective

Abstract

Background: Aquatic therapy has been identified as more conducive than land-based treatment options for a range of populations in improving health and quality of life. However, the prevalence of occupational therapists who implement aquatic therapy in practice is low.

Aim: To understand the perceptions of barriers and facilitators to aquatic therapy use by occupational therapists in the United States.

Methods: Individual semi-structured interviews were completed (via Skype) with four occupational therapists in the United States who held an 'Aquatic Therapeutic Exercise Certification' from the Aquatic Therapy and Rehab Institute (ATRI). Interviews were audio recorded and manually transcribed verbatim. Inductive thematic analysis was employed to identify themes and subthemes in the data.

Findings: The following three overarching themes were identified: institutional constraints and affordances impact aquatic therapy implementation; the perceived lack of unity within the occupational and aquatic therapy communities; and implications of aquatic therapy's low prevalence within the occupational therapy profession.

Conclusions: The findings reveal that institutional factors including pool accessibility, insurance coverage, and employer support are determinants of practitioner's abilities to use aquatic therapy. The research identified a desire for support through networking and the need to build the authority of occupational therapists in aquatic therapy to offset the barriers implicated with being a minority profession.

Keywords: aquatic therapy, occupational therapy, qualitative research, perspectives, United States

Background

Aquatic therapy, as defined by a multidisciplinary committee of aquatic therapy professionals in the United States and Canada, is "the use of water and specifically designed activity by qualified personnel to aid in the restoration, extension, maintenance and quality of function for persons with acute, transient, or chronic disabilities, syndromes or diseases" (Aquatic Therapy & Rehab Institute, Inc., p.1, 2004). When aquatic therapy is utilized in the occupational therapy domain, the occupational therapist uses the aquatic environment to maximize the client's ability to achieve functional treatment goals; for example, increased range of motion, strength, balance, and endurance to enable performance in activities of daily living (ADLs) (Franken, et al., 2013). Within occupational therapy, the provision of aquatic therapy is considered entry level therefore additional training is not required (AOTA, 2017). However, further training can be undertaken by multi-disciplinary healthcare professionals (including occupational therapists) to demonstrate a standard level of theoretical and practical competence to gain certification from the Aquatic Therapy & Rehab Institute (ATRI).

The aquatic environment holds unique properties not found in land-based therapies that can provide a more favorable environment for occupational therapy treatments. The aquatic environment provides simultaneous multi-sensory stimulation, which manifests a combination of the vestibular, proprioceptive and tactile sensory systems and creates an opportunity for integration (Nissim, et al., 2014). The buoyancy, hydrostatic pressure, viscosity, and temperature of the water environment may allow for movements less likely to be achieved on land and may provide a safer treatment environment by eliminating the risk of falling (Becker, 2009). Further, the gravitational influences can be controlled by varying the level of water immersion, which can provide unique grading opportunities within treatment (Nissim, et al., 2014). These conducive properties of the aquatic environment paired with the biological effects of immersing the body in water, including increased blood flow, and

decreased joint compression, can make aquatic therapy interventions more suitable for many populations in achieving their occupational therapy treatment goals (Stan, 2012).

The growing evidence base continues to suggest the use of aquatic therapy as a more conducive treatment option for a wide range of populations. For example, in a quantitative study conducted in the USA, aquatic therapy was found to increase the functional mobility of infants and toddlers with developmental delays and disabilities (McManus & Kotelchuck, 2007). Lai et al. (2015) found in their quasi-experimental study conducted in Taiwan, that the children with cerebral palsy in their aquatic therapy group scored higher on measures of gross motor function and on physical activity enjoyment scales than the children with cerebral palsy in their control group. A pilot study conducted in the USA supports the use of aquatic therapy to increase amniotic fluid and length of gestation with women with high- risk pregnancies (Sechrist, et al., 2015). Salem et al. (2010) also conducted a pilot study in the USA, they found that a community aquatic therapy programme for adults with multiple sclerosis improved motor functions. An evidence-based literature review conducted by Wheeler et al. (2015) indicates that aquatic and aerobic exercise can help decrease depressive symptoms and promote positive mood states and community involvement for people living with traumatic brain injuries. Recio, et al.'s (2017) also carried out a review, the findings of which suggests that aquatic therapy can promote recovery from spinal cord injury. A randomized clinical trial conducted in Spain demonstrates the effectiveness of aquatic therapy for people living with Parkinson's disease, for controlling pain and increasing balance and function (Perez del la Cruz, 2017).

Yet despite this growth in evidence-base, the prevalence of occupational therapists who implement aquatic therapy in practice is low (Cole & Becker, 2011; Franken, et al., 2013). Some studies suggest this low prevalence is a result of limited aquatic therapy education in the occupational therapy curriculum and limited exposure in practice (Gelman &

Gutman, 2000; LaBlanc & Lauck, 2018). However, the low prevalence likely results from a multitude of factors, not only the lack of education and exposure within the occupational therapy profession. For example, two recent research studies conducted with physical therapists in Canada using aquatic therapy both identified pool accessibility, staffing and costs, and patient suitability/safety concerns as perceived barriers to implementation (Ashton, 2018; Marinho-Buzelli, et al., 2019). It is possible these factors may impact occupational therapists' abilities to implement aquatic therapy in the United States as well.

The literature demonstrates a range of quantitative studies with service users that support the use of aquatic therapy, however, at present there is a lack of qualitative research that explores the perspectives of occupational therapists (rather than physical therapists) who use aquatic therapy in the USA (rather than Canada). Therefore, the aim of this study is to explore factors that hinder and promote the use of aquatic therapy as an intervention in occupational therapy practice in the United States from the perspectives of occupational therapists. This is necessary to develop the existing limited research and inform future research, education, and practice in this area.

Methods

This study adopted a qualitative research design (Silverman, 2013) to explore the perspectives and experiences of occupational therapists in relation to the use of aquatic therapy in practice, including the challenges and facilitators to its implementation.

Participants

Perspectives were sought from occupational therapists practicing in the U.S. who held an 'Aquatic Therapeutic Exercise Certification' from the Aquatic Therapy and Rehab Institute (ATRI) (Aquatic Therapy & Rehab Institute, Inc., 2019a) this certification ensures that standards to practice are met. Due to the exploratory nature of the study, the researcher

opened recruitment to occupational therapists both currently using and not currently using aquatic therapy in their practice. Participants were recruited through an invitation email sent by ATRI to all users of their "eList", an ongoing email group for professionals in the aquatic therapy discipline (Aquatic Therapy & Rehab Institute Inc., 2019b). This procedure resulted in the recruitment of four participants, which is appropriate for a qualitative study (Bowling, 2014). However, the relatively small number of participants may reflect the limited number of ATRI certified occupational therapists using aquatic therapy, in addition the Covid 19 pandemic and restrictions (a lockdown was put in place a week after the invitation email was sent) may also have had an impact on recruitment. All participants were assigned pseudonyms. Characteristics of the participants are presented in Table 1.

Table 1: Participant Characteristics

Participant number	Pseudonym	Currently using AT[a] (Y/N)	Current setting	No. years with ATRI certification	No. years practicing OT[b]
1	Mary	Y	Pediatrics/outpatient hospital	4	13
2	Kate	Y	Pediatrics/outpatient community And occupational therapy lecturer	2	9
3	Jill	N	Geriatrics/assisted living facility	5	3
4	Lucy	N	Acute care/acute care and acute rehab hospital	9	8

[a]AT: Aquatic therapy
[b]OT: Occupational therapy

Data collection

Ethical approval for the study was obtained from the Northumbria University Ethics Panel (reference number 18568) and written informed consent from participants was obtained prior to data collection. Interviews were conducted from February to March 2020; they occurred over Skype and followed a semi-structured interview schedule consisting of open-

ended questions about perceptions of aquatic therapy's use in occupational therapy and experiences with the process of implementing aquatic therapy into their practice. Interviews lasted between 30 minutes to one hour. Interviews were recorded using an audio-recording device and transcribed verbatim.

Data analysis

Interview transcripts were analysed using inductive thematic analysis to identify and interpret themes and contrasts in the data (Clarke & Braun, 2016). Specifically, the process involved generating codes and a semantic approach in identifying themes to focus the analysis on the explicit and surface meanings of the data (Braun & Clarke, 2006). The NVivo 12 qualitative data analysis software was used to manage and code the data (Bowling 2014). In addition, mind maps were used to cluster the initial codes (identified using NVivo) which helped develop and refine the themes and subthemes, relevant quotes were extracted from the data that appropriately and accurately represented them. Each version of the themes and subthemes were kept, providing an audit trail to enhance the trustworthiness of the data. These versions were reviewed, discussed, and agreed by the research team (first and second author) to enhance the credibility of analysis (Braun & Clarke, 2006). For example, discussion between the two authors resulted in merging four themes from an earlier version, into three themes for the final version (Occupational therapy and underrepresentation in aquatic therapy (theme three) and Public knowledge and perceptions of aquatic therapy (theme four), overlapped and were therefore combined to become Implications of aquatic therapy's low prevalence within the occupational therapy profession (final theme three).

The final version of themes and subthemes are presented in table 2. Further, a reflective diary was kept throughout the research process to record personal thoughts and feelings to increase the rigor and trustworthiness of the data (Ross, 2012).

Results

Three overarching themes with subthemes were identified from the interview data. These are outlined in Table 2.

Table 2: Themes and subthemes

Theme	Subthemes
Institutional constraints and affordances impact aquatic therapy implementation	• Pool accessibility • Scheduling • Employer/staff support • Insurance
Perceived lack of unity within the occupational therapy and aquatic therapy communities	• Discrepancies in professional body engagement and support • Limited networking opportunities for occupational therapists using aquatic therapy
Implications of aquatic therapy's low prevalence within the occupational therapy profession	• Lack of aquatic therapy representation in occupational therapy research and education • False assumptions/misconceptions held by the public • Lack of professional support • Defending occupational therapy's place in the aquatic therapy community

Institutional constraints and affordances impact aquatic therapy implementation

This overarching theme indicates institutional-level factors impacting the participants' use of aquatic therapy and includes the subthemes of pool accessibility, scheduling, employer and staff support, and insurance. Although the occupational therapists who participated in this study worked in dissimilar settings, themes of accessibility to a pool, level of support from employers and staff, and insurance and scheduling constraints were perceived as impacting their ability to implement aquatic therapy. These institutional factors seemed to have a more significant impact on their practice than the occupational therapists originally anticipated. This is illustrated in Jill's response to a question asking what she wished she knew before trying to implement aquatic therapy:

> "I think maybe just thinking that you can do it anywhere because you can't just do it anywhere. You have to have a facility, and a company that believes in it and supports it." (Jill)

Pool accessibility

Access to a pool appeared to be one of the strongest determinants of implementation; pool accessibility was the first factor mentioned by 3 of the 4 participants (1/2/3) when asked about barriers to aquatic therapy implementation. In Jill's case, for example, it seemed to be the largest hindrance:

> "I know I have the resources and education to do it but having the facility to do it (laughs), I mean having the pool, that's going to be your biggest barrier." (Jill)

The participant who had access to a pool acknowledged this access as a facilitator and detailed the perceived affordances it has in starting an aquatic therapy program:

> "The fact that we already had a pool. Because I know, god bless the people who start a program and their facility doesn't have a pool, but then they coordinate with the senior center, or the YMCA, and I'm just like oh my gosh that's so much work (laughs)" (Mary)

This added work required of therapists who do not have adequate pools in their facility is demonstrated through Kate's experience of finding a pool to use in the community that is conducive for the needs of her patients:

> "we have a rec center on campus, but it is… a training pool and it's freezing… and it's 3 feet all around. The pool [at the recreation center] we do it at has a zero-entry. I really like the zero-entry because it allows the children to walk in, not worry about scariness of having to jump in or getting down to the bottom of the pool, so that was a big thing too" (Kate)

Scheduling

It appeared that access extended further than having an adequate pool; the participants' accounts illustrate that scheduling within these pool facilities raises another barrier. For instance, Mary expressed, "all of these departments are sharing like 2 little pools? We're kind of fighting for space to get in there. If I could do more time in the pool I would."

The participants accounts seemed to attribute this "fight for space" to budgeting and efficiency tactics by the facilities as well:

> "If you don't have multiple therapists in there at one time, [the pool facilities] are losing money." (Jill)

Employer/staff support

The accounts of the 2 participants (1/2) who have successfully implemented aquatic therapy into their practice demonstrate that staff support, particularly from other occupational therapists, facilitated the implementation of aquatic therapy into their practice:

> "I'm really lucky that we already have a pool and wonderful pool staff, and there were already OT's in other departments… that were doing aquatics, so I went in and observed some of their sessions to kind of see how they were utilizing some of our equipment… so that was nice to have them too. At least somebody had already done it." (Mary)

The importance of employer support was further demonstrated in the accounts of the participants not currently using aquatic therapy (3/4). The participants expressed the need for employer support to help negate institutional constraints for example, Jill could not get access to a pool to implement her therapy, saying, "[the company] did not want to pay for the whole pool".

Insurance

Systemic factors in relation to insurance were mentioned by all the occupational therapists interviewed. Insurance seemed to influence the decisions made by the therapist, healthcare provider, and the patient in terms of providing and receiving aquatic therapy interventions:

> "most of the patients are insurance driven, they don't want to just go get aquatics just because they can benefit, they also want insurance to pay for it so that is also a barrier too." (Lucy)

Two of the participants (2/3) only accepted private pay at their facilities and did not take insurance. This seemed to bring up added difficulties in making their services accessible to patients, for example, Kate stated "the reality is a lot of parents can't afford what an actual aquatic therapy session would cost". This posed the need to find and organize alternative funding options.

In contrast to the other accounts, Mary's facility accepts insurance. Her account demonstrates how this helped facilitate implementation by strengthening her argument for aquatic therapy in her setting:

> "(aquatic therapy) is the most highly reimbursed code so, even if I see 2 pool patients and 1 cancels, I am still making more money than somebody that sees 3 land patients… So that helped my case." (Mary)

Perceived lack of unity within the occupational and aquatic therapy communities

This overarching theme encompasses how the participants perceived aquatic therapy resources and continuing education, and networking within the aquatic and occupational therapy disciplines.

Discrepancies in professional body engagement and support

Although all the occupational therapists interviewed are members of ATRI, their accounts illustrate a variance in knowledge on the different aquatic professional bodies that exist, and which bodies are best fit to support them:

> "at the time (ATRI) was the only one I knew of and then… having met people through ATRI conferences and stuff I discovered… other governing bodies and have taken courses and gotten certifications courses through them." (Mary)

Despite the variance in knowledge on existing aquatic therapy bodies, all the interviewees expressed their appreciation for the accessibility and content of the ATRI courses and conferences:

> "I actually looked at Aquatic Therapy University (ATU)… but their courses were very expensive, you had to go far away… and then I came across ATRI and I saw, oh you can take them online, the courses were local to me, and it seemed more feasible to do." (Kate)

However, Mary expressed a shift in perspective after experiencing courses from other professional bodies:

> "I recently have gotten 2 certifications from (the International Aquatic Therapy Faculty) and I feel like I have the most respect for that governing body. Just based off the education I got, the fidelity that they are trying to keep with the techniques that they use. In comparison to what I was getting through ATRI I was like wow this is so much better… I think (occupational therapists) don't know what they're getting until they take (an ATRI course), and they don't know what they're missing until they take a course from someone else." (Mary)

Further, three of the interviewees iterated that a certification from an aquatic therapy professional body was not required to use aquatic therapy, demonstrating a perceived lack of mandatory/standardized certification:

> "I think even at my facility there's maybe 2 people, like me and another person that are ATRI certified, but yeah everyone else still works in the pool without that"- Mary

Limited networking opportunities for OT's using aquatic therapy

The interviewees' accounts demonstrate the desire for more professional connections within the community of occupational therapists using aquatic therapy. Specifically, finding how other occupational therapists are implementing it in their practice:

> "I think that networking is really important. Finding out how other people are using it in the (occupational therapy) field and which settings"(Jill)

Although they desire more networking, their accounts also illustrate a perceived barrier in doing so. It seems that finding occupational therapists within the aquatic therapy community is challenging for example, Kate said: "whenever I go to an ATRI event I feel like I hardly can find any OTs that are even there."

Three of the four accounts (2/3/4) called for fellow occupational therapists currently using aquatic therapy to contribute their knowledge and expertise to the community, further indicating the collective desire for increased networking:

> "If you happen to get in contact with an occupational therapist who is actually working in aquatics, I think that's a great idea for you to tell them to maybe, if they can, have a CEU course to present on their work. Like, what kind of interventions are you using? And even if they provide like a 1-hour lecture in AOTA that's great advocacy" (Lucy)

Implications of aquatic therapy's low prevalence within the occupational therapy profession

This overarching theme encompasses some implications of aquatic therapy's low prevalence within the occupational therapy profession. The occupational therapists' accounts demonstrated a perceived lack of representation of aquatic therapy in occupational therapy research and education, false assumptions and misconceptions from the public, lack of support by the American Occupational Therapy Association (AOTA), and needing to defend occupational therapy's place in the aquatic therapy community.

Non-representation of aquatic therapy in occupational therapy research and education

All the occupational therapists stated they did not have any exposure to aquatic therapy in their occupational therapy education and expressed difficulty in finding aquatic therapy research in the occupational therapy body of literature, indicating this as a barrier to promoting aquatic therapy in occupational therapy practice:

> "I think the main barrier really is in the OT curriculum… if it wasn't for my recreational therapy background, I had no exposure or background in aquatics in occupational therapy." (Lucy)

Three of the participants (1/2/4) expressed a desire to contribute to research, demonstrating a collective effort to expand the knowledge base. The motivation seems to come from wanting representation in the aquatic therapy field:

> "That's always been in the back of my mind, like, 'maybe I'll get that (research) going again'. That we have it somewhere on paper like 'hey, we do this too.'"- (Mary)

False assumptions/misconceptions held by the public

Accounts from all the occupational therapists illustrate that false assumptions and misconceptions held by the public inhibit their ability to utilize aquatic therapy in their practice. This included misconceptions from coworkers, patients, and parents about what aquatic therapy consists of and its therapeutic implications, as well as who is qualified to utilize the aquatic environment for treatment.

Occupational therapists' low prevalence in the aquatic therapy community seemed to impact staff perceptions of who is qualified to implement aquatic therapy. Mary's account illustrates the implications these assumptions have on her caseload:

> "I still have to [educate physicians] to this day. Explain "hey, I provide this service… lets refer this patient"… Cause again, I think so many people associate (aquatic therapy) with PT so they just don't naturally think to refer to me first" (Mary)

Additionally, patient assumptions appear to have an impact on their motivation to engage in aquatic therapy for example, in Jill's recollection of patient interactions, she stated "people don't want to get their hair wet… they think of aquatic therapy and think their face is going to be underwater".

Further, it seems connotations patients hold with the pool environment can contribute to misconceptions of its therapeutic value:

> "If someone has never been in the pool for (therapy), if they think the pool is only for swimming, they may not understand the benefits of the water, the hydrostatic pressure, the breathing, the compression on the joints, and things like that." (Jill)

Lack of professional support

Accounts from 2 of the occupational therapists (1/4) indicated that support from AOTA on the use of aquatic therapy as an intervention would facilitate the growth of aquatic therapy in occupational therapy practice.

> "Involving AOTA about some of the standards that an occupational therapist can provide to be able to provide aquatic services. If there are any barriers for insurance providers, what kind of equipment is needed, what is the best strategy or intervention to target occupational therapy goals or interventions. You know, some evidence-based practice." (Lucy)

However, it appears that attempts to promote aquatic therapy through the AOTA were unsuccessful:

> "about 4 years ago (a fellow occupational therapist) submitted a proposal to AOTA for their conference where she was using aquatics for brachial plexus injury. And whoever reviewed her proposal denied it, wrote back, and said that "this is a PT modality"… Ever since that day it has just been my soap box to educate people that, NO it is not just a PT modality. Swimming is a leisure activity that we are using to improve skills." (Mary)

It seems that this lack of support from the AOTA reinforces the misconception that aquatic therapy is a modality unique to physical therapy for example, Mary concludes her statement saying "even through AOTA, there's people saying… this is all physical therapy".

Defending occupational therapy's place in the aquatic therapy community

It is apparent that the higher prevalence of physical therapists using aquatic therapy compared to occupational therapists contributes to a perceived power dynamic within the therapy community. All the occupational therapists interviewed referred to the "dominance" of physical therapists in the aquatic therapy community:

> "I feel like sometimes I have to really like fight for my spots. I hear comments from our PT director like 'Oh, you want to be a PT 'cause you're in the pool' and I'm like, 'no, (laughs) I'm an OT'. I just think the pool is an amazing modality. I see incredible gains. I have yet to treat a patient in there that hasn't made progress." (Mary)

Although only 2 of the occupational therapists are currently using aquatic therapy, when asked what they would say to an occupational therapist who wants to incorporate aquatic therapy into their practice, the accounts of all 4 demonstrated encouragement for occupational therapists to pursue it. For example, both Mary and Kate said: "Do it!"

In all accounts, their encouraging words were followed by practical ways to navigate being a minority discipline in the aquatic therapy field, particularly, by cultivating confidence in their occupational therapy role and abilities in the aquatic environment:

> "I would say don't be afraid. Because if anything, they are the pioneers!... and have the confidence that as an occupational therapist you are as able and as competent as any practitioner to be able to rehabilitate patients in water." (Lucy)

Discussion

This research study explored the implementation of aquatic therapy within occupational therapy practice among four occupational therapists working in a range of practice settings (outpatient rehab, inpatient hospital, assisted living facility, and community/university education). Of the four participants, two were currently using aquatic therapy in their practice and two were not. The participants identified pool accessibility, employer and staff support, and insurance as important determinants of aquatic therapy implementation. These institutional factors facilitated the 2 therapists (1/2) abilities to successfully incorporate aquatic therapy in their practice and were identified as barriers for

the 2 therapists (3/4) who have not implemented it. The findings identified that budgeting and efficiency tactics led to limited pool accessibility and participants feeling the need to "fight for space". To further these financial factors, insurance was also indicated as a determining factor. The United States recognizes aquatic therapy as an independent modality for rehabilitation (CPT code 97113: aquatic therapy with therapeutic exercise) which allows therapists to bill insurance companies directly (American Medical Association, 2019). It was made apparent through the accounts that inaccessibility to this insurance coverage was a barrier, as it limited accessibility to only patients who had the financial means to pay for the service.

The findings have implications for practice, including that occupational therapists, health care administrators, and community groups could collaborate to strategize and develop practical solutions to minimize and resolve these barriers (Marinho-Buzelli, et al., 2019). These findings on institutional factors broadly coincide with previous research conducted with physical therapists using aquatic therapy in Canada, illustrating implications for barriers and facilitators across disciplines in the aquatic therapy community and further demonstrating the validity of the findings (Ashton, 2018; Marinho-Buzelli, et al., 2019).

The participants' accounts expressed appreciation for the content provided by ATRI and identified ATRI's affordability and accessibility as a facilitator. Additionally, there was a range in the occupational therapists' knowledge of existing aquatic therapy bodies outside of ATRI. Most of the participants were aware of other bodies but only one had participated in classes. However, this may not be representative of the aquatic therapy population due in part to the study being limited to occupational therapists who held an ATRI certification. Interestingly, the participant who took classes elsewhere identified she had "more respect" for the International Aquatic Therapy Faculty (IATF) body than ATRI due to its perceived higher educational quality and fidelity with therapy techniques. These findings may have

implications for further research to be conducted on the aquatic therapy community's perceptions of the regulatory bodies and the validity of the content and resources provided by these bodies (Ashton, 2018). This is particularly important given that these bodies are providing continuing education for practitioners in the aquatic therapy field.

The participants in this study identified they did not receive any education or exposure to aquatic therapy in their occupational therapy curriculum as students. Again, this points to the content of occupational therapy education as a potential barrier to expanding the use of aquatic therapy in the field (Gelman & Gutman, 2000; LaBlanc & Lauck, 2018). These findings suggest that further implementation of aquatic therapy into the occupational therapy curriculum, may help increase the prevalence of occupational therapists using aquatic therapy (LaBlanc & Lauck, 2018).

The data identified implications of occupational therapy practitioners' lower prevalence in the aquatic therapy field, for example, most of the interviewees talked about experiences with false assumptions held by patients and staff, particularly, the assumption that aquatic therapy is unique to the physical therapy profession. The participants discussed challenges that this physical therapy "dominance" had on their implementation including gaining referrals from physicians, getting pool space for treatment, and obtaining employer support for occupational therapists' use of the aquatic environment as well. These findings illustrate a perceived power dynamic within the aquatic therapy community (Ashton, 2018) and the barriers it implicates for occupational therapists within it. In addition, the data identified patient misconceptions about the content and value of aquatic therapy as a barrier to patient recruitment. This aligns with previous research on the current level of public awareness on aquatic therapy and its implications (Ashton, 2018). These findings suggest further research to be conducted on building the authority of aquatic therapy and the occupational therapy profession within it.

The participants in this study perceived a lack of occupational therapy community within the aquatic therapy field and called for more support both through the AOTA and networking opportunities. The past few years, it appears the AOTA has increased recognition and support for the use of aquatic therapy in occupational therapy, as evidenced by increased aquatic therapy representation in their critically appraised papers and topics series (Wheeler, et al., 2015; Pro, et al., 2015; Poole, et al., 2017), their involvement in increasing reimbursement for the aquatic therapy insurance code 97113 (AOTA, 2017), and the inclusion of ATRI in continuing education directory (OT Practice, 2020). However, the findings of this study indicate that occupational therapists in the aquatic therapy field perceive a lack of AOTA support. Practitioner membership to AOTA may influence perceptions of AOTA's support for aquatic therapy due to factors including accessibility to the AOTA information. However, it is uncertain whether the findings were influenced by this factor, as "AOTA membership" was not included in the participant demographics. The findings have implications for practice, including that information could be made more readily available to practitioners by the AOTA. Additionally, findings of this study demonstrate that a sense of community is a perceived facilitator for occupational therapists using aquatic therapy. Most of the practitioners identified that increased networking may help them navigate some perceived barriers and share facilitators through the exchange of information, experiences, and resources within the community. This may have implications for the creation of a practical networking platform by the AOTA for occupational therapists using, or interested in using, aquatic therapy in their practice. For example, the AOTA could create a platform that resembles the Academy of Aquatic Physical Therapy (AAPT), which is the American Physical Therapy Association's (APTA) subsection for aquatic physical therapy (Academy of Aquatic Physical Therapy, 2020).

Conclusions

This study's exploration of occupational therapists' perspectives on the implementation of aquatic therapy in their practice adds further insight to the limited existing research contextualizing the use of aquatic therapy in the occupational therapy profession in the U.S. The findings reveal several factors impacting practitioners' perceived abilities to implement aquatic therapy which have implications for the profession. First, the findings illustrate that institutional factors including pool accessibility, insurance coverage, and employer support are determinants of practitioner's abilities to use aquatic therapy. Occupational therapists should take these factors into consideration when cultivating a plan to implement aquatic therapy into their practice.

Second, the research identified a desire for support through a networking community specifically of occupational therapists involved in the aquatic therapy field. The creation of a community network has implications for minimizing some perceived barriers through the sharing of knowledge, experiences, and strategies between practitioners, therefore, it would be beneficial for the AOTA to consider the creation of an aquatic therapy subsection similar to the AAPT (Academy of Aquatic Physical Therapy, 2020).

Finally, the data illustrates the need to build the authority of occupational therapists in aquatic therapy to offset the barriers implicated with being a minority profession in the aquatic therapy community (Ashton, 2018). To do this, occupational therapists should consider contributing research and continuing education resources on aquatic therapy to the profession. Additionally, occupational therapy educational providers should consider integrating aquatic therapy education within the curriculum (LaBlanc & Lauck, 2018). This could include further interprofessional education, research and practice which may facilitate a greater understanding of the unique and complimentary roles of different professionals when

using aquatic therapy. A possible model, for example in paediatrics, could involve an occupational therapist using aquatics as a meaningful leisure occupation to increase upper extremity strength, range of motion and coordination leading to functional gains (Franken et al., 2013), working collaboratively with a physical therapist using aquatics to increase respiratory capacity and assist with walking endurance (Fragala-Pinkham, 2009).

Limitations and recommendations for future research

Although the findings of this small-scale qualitative study are rich and contextualized, generalizations may be limited due to the size, geographical location, and the participant inclusion criteria. It is recommended that a future large-scale study is conducted to explore perspectives from occupational therapists across the United States who are working in a range of settings and who have a range of affiliations with aquatic therapy governing bodies to gain a more comprehensive and diverse understanding of barriers and facilitators to aquatic therapy's use in occupational therapy.

Additionally, given the identified financial and institutional level determining factors to aquatic therapy implementation, a future study exploring the perspectives of healthcare administrators is also recommended. Future initiatives should include collaborating with health care professionals in the aquatic therapy field (occupational therapists, physical therapists, recreational therapists) health care administrators, and community organizations to develop solutions to overcome identified barriers to aquatic therapy implementation.

References

Academy of Aquatic Physical Therapy (2020). *APTA: Academy of Aquatic Physical Therapy.* https://aquaticpt.org

American Medical Association (2019). *CPT overview and code approval*. https://www.ama-assn.org/practice-management/cpt/cpt-overview-and-code-approval

American Occupational Therapy Association (2017). *AOTA Advocacy Succeeds in Increasing Code Values for 2018*. https://www.aota.org/Advocacy-Policy/Federal-Reg-Affairs/News/2017/Advocacy-Succeeds-in-Increasing-Code-Values-for-2018.aspx

Aquatic Therapy & Rehab Institute, Inc. (2004). *Aquatic Therapy and Rehabilitation Standards*. http://www.atri.org/Certification/Standards.pdf

Aquatic Therapy & Rehab Institute, Inc. (2019a) *ATRI Aquatic Therapeutic Exercise Certification*. http://www.atri.org/ATRICertification.htm

Aquatic Therapy & Rehab Institute, Inc. (2019b) *ATRI eList Bulletin Board*. http://www.atri.org/elist.htm

Ashton, A. (2018). *Contextualizing Aquatic Rehabilitative Practices in Canada* [Unpublished master's thesis]. University of Ottawa.

Becker, B.E. (2009). Aquatic Therapy: Scientific Foundations and Clinical Rehabilitation Applications. *Physical Medicine and Rehab*, *1*(9), 859-872.

Bowling, A. (2014). *Research Methods in Health: Investigating Health and Health Services*. (4th ed.). McGraw Hill Education.

Braun, V., & Clarke V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.

Clarke, V., & Braun, V. (2016). Thematic Analysis. *The Journal of Positive Psychology, 12*(3), 297-298.

Cole, A.J, & Becker, B. E. (2011). *Comprehensive Aquatic Therapy*. (3rd ed.) Washington State University Publishing.

Franken, L.E., Lawson, L.A.M., & Santalucia, S. (2013). Aquatics: Promoting Quality of Life, Health, and Wellness. *OT Practice, 18*(6), 16-20, 22.

Fragala-Pinkham, M.A., Dumas, H.M., Barlow, C.A. & Pasternak, A. (2009). An Aquatic Physical Therapy Program at a Pediatric Rehabilitation Hospital: A Case Series. *Pediatric Physical Therapy,* 21(1), 68-78.

Gelman, M., & Gutman, E. (2000). *Practicing Pediatric Occupational Therapists' Knowledge and Attitudes Toward the Use of Aquatic Therapy as a Modality in Treatment* [Unpublished master's thesis]. Touro College.

LaBlanc, E. L. & Lauck, M. L., (2018). *Aquatic Therapy for Occupational Therapy Education and Practice* [Unpublished master's thesis]. University of North Dakota.

Lai, C. J., Liu, W. Y., Yang, T. F., Chen, C. L., Wu, C. Y., Chan, R. C. (2015). Pediatric Aquatic Therapy on Motor Function and Enjoyment in Children Diagnosed with

Cerebral Palsy of Various Motor Severities. *Journal of Child Neurology, 30*(2), 200-208.

Marinho-Buzelli, A. R., Zaluski, A. J., Mansfield, A., Bonnyman, A. M., Musselman, K. E. (2019). The use of aquatic therapy among rehabilitation professionals for individuals with spinal cord injury or disorder. *The Journal of Spinal Cord Medicine, 42*, 158-165.

McManus, B. M., Kotelchuck, M., (2007) The Effect of Aquatic Therapy on Functional Mobility of Infants and Toddlers in Early Intervention. *Pediatric Physical Therapy, 19*(4), 275-282.

Nissim, M., Ram-Tsur, R., Zion, M., Ben-Soussan, T.D., Mevarech, Z. (2014). Effects of Aquatic Motor Activities on Early Childhood Cognitive and Motor Development. *Open Journal of Social Sciences, 2,* 24-39.

OT Practice (2020, August). 2020 OT Continuing Education Directory. *OT Practice*, 31-43.

Perez de la Cruz, S. (2017). Effectiveness of aquatic therapy for the control of pain and increased functionality in people with Parkinson's disease: a randomized clinical trial. *European Journal of Physical and Rehabilitation Medicine, 53*(6), 825-832.

Poole, J., Siegel, P., Arbesman, M. C., Tencza, M. J., Apodaca, B. (2017). AOTA Critically Appraised Topic: Rheumatic Diseases and Conditions. *AOTA*, 1-6.

Pro, S., Bains, R., Li, K., (2015). AOTA Critically Appraised Papers Series: Evidence Exchange. *AOTA*, 1-7.

Recio, A. C., Stiens, S. A., Kubrova, E. (2017). Aquatic-Based Therapy in Spinal Cord Injury Rehabilitation: Effective Yet Underutilized. *Current Physical Medicine and Rehabilitation Reports, 5*(3), 108-112.

Ross, T. (2012). *Survival Guide for Health Research Methods*. (1st ed.). McGraw-Hill Education.

Salem, Y., Scott, A. H., Karpatkin, H., Concert, G., Haller, L., Kaminsky, E., Weisbrot, R., Spatz, E. (2010). Community-based group aquatic programme for individuals with multiple sclerosis: a pilot study. *Journal of Disability and Rehabilitation, 33*(9), 720-728.

Sechrist, D. M., Tiongco, C. G., Whisner, S. M., Geddie, M. D. (2015). Physiological Effects of Aquatic Exercise in Pregnant Women on Bed Rest. *Occupational Therapy in Health Care*, 29(3), 330-339.

Silverman D. (2013) *Doing Qualitative Research.* Sage Publications Ltd., London.

Stan, A. E. (2012). The benefits of participation in aquatic activities for people with disabilities. *Medicina Sportiva, 8*(1), 1737-1742.

Wheeler, S., Acord-Vira, A., & Davis, D. (2015) AOTA Critically Appraised Topics and Papers Series: Traumatic Brain Injury. *AOTA*, 1-3.