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Mobility and medical service dogs: a qualitative analysis of expectations and experiences

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Abstract

Purpose: To qualitatively describe and compare the expectations and experiences of living with a mobility or medical service dog among those with a physical disability or chronic condition.

Materials and methods: A total of 64 participants living with a service dog and 27 on the waitlist to receive a service dog participated in a cross-sectional open-ended survey. Qualitative content analysis was used to identify themes and sub-themes.

Results: A total of 101 codes were summarized into themes of Physical Benefits, Psychosocial Benefits, and Drawbacks to having a service dog. Psychosocial benefits included the human–animal relationship as well as emotional, quality of life, and social benefits. Drawbacks included service dog care, public access and education, lifestyle adjustments, and dog behaviour. While participants on the waitlist were more likely to anticipate physical benefits of having a service dog, those with a service dog largely described psychosocial benefits. Findings also suggest that some drawbacks, such as public discrimination, may be unanticipated by the waitlist.

Conclusions: A comparison of expectations and experiences of service dog ownership highlights both the positive and negative aspects of the service dog–owner relationship and identifies potential aspects of having a service dog that may be unanticipated or overestimated by those on the waitlist.

Keywords

Service dogs; assistance dogs; animal-assisted intervention; human–animal interaction; disability; psychosocial health; qualitative

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Introduction

Service dogs are a potential complementary and integrative assistive aid for individuals with disabilities or chronic conditions. Their roles in society continue to grow as they can be trained to provide assistance, guidance or medical alert and response to individuals with a wide variety of disabilities and conditions [1]. In the United States, service dogs have been legally protected since 1990 as an assistive aid for those with a disability by the Americans with Disabilities Act (ADA) [2]. As a form of assistive technology, service dogs can be trained for tasks that can improve independence for those with physical or mental limitations. For example, mobility service dogs can retrieve dropped items, open and close doors, or pull a wheelchair [3-5]. In addition, medical service dogs can be trained to alert to low blood sugar or respond to seizures for those needing diabetic or epileptic monitoring. However, in addition to the physical and medical functions they are uniquely trained for, service dogs may also provide their owners with psychosocial benefits due to their presence, companionship, and the impact of their assistance.

There is growing literature examining the psychosocial effects of service dogs on individuals with disabilities or chronic conditions. Specifically, studies using retrospective, longitudinal and cross-sectional designs suggest that service dogs can significantly impact health-related quality of life including psychological well-being, self-esteem and social functioning [6,7]. For example, findings from retrospective studies suggest that the addition of a service dog can improve confidence and self-esteem, decrease the need for assistance from others, and promote positive social interactions in public [8-12]. Longitudinal pilot studies have also provided promising findings regarding increases in independence, self-esteem and social functioning after receiving a service dog, but are limited by small sample sizes and the lack of a control group [4,11,13]. Cross-sectional studies comparing those with a service dog to matched controls without a service dog have found mixed results regarding outcomes, but some have reported a significant relationship between having a service dog and higher quality of life and psychosocial health [14-16]. Observational studies have also found that individuals in wheelchairs with a service dog present are more likely to be smiled at and engaged in conversation with strangers than individuals without a dog present [17-19].

Though the physical and psychosocial benefits of having a service dog have been the subject of several studies, many studies often fail to consider the potential drawbacks of service dog ownership. These drawbacks are important to quantify as they may have important psychological impacts on an individual with a physical disability/chronic condition or their family members. For example, as many individuals with disabilities experience significant societal discrimination, additional difficulties with public access or negative attention from having a service dog may be particularly relevant. In addition, service dogs require care, maintenance and financial responsibility which may be additionally taxing on parents or caregivers, who already experience significant burden and stress [20,21].

While findings from empirical studies offer evidence that service dogs can have measurable effects on standardized measures of health and well-being among individuals with physical disabilities, they fail to describe the specific characteristics of the service dog's assistance, behaviour or demeanour that promote a successful service dog-owner relationship. They

also fail to quantify *how* a service dog may affect quality of life from the owner's point of view, which is critical for understanding the theoretical mechanisms that may explain the psychosocial benefits seen in quantitative studies. In this way, qualitative research can provide a richer and more in-depth exploration of the relationship between service dogs and their owners to aid in interpreting results from complementing quantitative research [22].

To date, there has been limited qualitative research exploring an individual's relationship with a mobility or medical service dog. While some studies have quantified service dog use, benefits and drawbacks with closed-ended response options [10,23,24], this method does not allow participants to express their opinions in their own words and prevents responses that are unanticipated by the researchers. Few studies have taken a content or thematic analysis approach to exploring open-ended qualitative data regarding the relationship with a service dog, but have been largely limited by small sample sizes or lack in objective coding methodology. For example, a 2001 study explored common themes regarding experiences with mobility service dogs using ethnographic observation and interview, but was limited to five individuals [25]. Another study used a pre-post design to measure expectations (before getting a service dog) and actual experiences (after getting a service dog) among 22 individuals with mobility impairments, but lacked in a standardized coding methodology and a control group [11].

While service dog owners' experiences are important to quantify, the relative perspectives of those without a service dog or on the waitlist to receive one are equally essential to quantify. In particular, understanding the expectations of those anticipating the benefits of a service dog has critical implications for rehabilitation. Specifically, recognizing the potential discrepancies between expectations and real-life experiences with a service dog is critical for rehabilitation professionals to fully prepare those considering incorporating a service dog as a new assistive technology in their lives. For similar reasons, an understanding of client expectations is also important for organizations who train and place service dogs. Knowing the expectations of the applying population may not only assist in setting realistic expectations about the potential negative aspects of owning a service dog, but may also assist with the preparation of service dogs for future owners.

The objective of the present study was to describe and compare both the experienced and expected benefits and drawbacks of partnering with a service dog by using a conventional content analysis approach. Specifically, the research focused on assessing the benefits and drawbacks of mobility and medical service dogs due to the population sampled. Our specific research goals were (1) to describe the specific physical and/or psychosocial aspects of having a service dog that are the most beneficial, (2) to explore the drawbacks of having a service dog and (3) to compare the relative frequency of experienced and expected responses across those with a service dog and those on the waitlist. This study builds on current knowledge by using a standardized qualitative analysis approach to include the perspectives of both those with a service dog *and* those on the waitlist in a large and diverse sample of individuals with physical disabilities and chronic conditions.

Methods

This study was approved by the Purdue University Human Research Protection Program Institutional Review Board (IRB Protocol #1602017187). No interactions occurred with any service dogs, therefore a waiver was obtained from the Purdue University Institutional Animal Care and Use Committee (IACUC).

Participants

Participants were recruited from the database of Canine Assistants, a national service dog provider of mobility, seizure response and diabetic alert service dogs. Mobility service dogs are trained to assist individuals with physical disabilities by performing such behaviours as picking up objects from the floor, providing balance or opening doors. Seizure response service dogs assist individuals with seizure disorders, and remain next to the individual during a seizure or summon help in the event of a seizure. Diabetic alert service dogs alert individuals to changes in blood sugar or may summon help in the case of a medical event. Canine Assistants service dogs are purpose-bred Golden Retrievers, Labrador Retrievers, Poodles or hybrids/crosses of these breeds. Service dogs are prepared for placement during the first year and a half of their lives while being cared for and raised at the service dog provider facility by puppy-raising volunteers and Canine Assistants staff.

All recruited participants had been screened and accepted by the Canine Assistants program. Inclusion criteria for both current and service dog recipients included: (1) evidence of a physical disability, seizure condition or other special need (i.e., diabetes) verified via a physician-completed and signed medical history form, (2) no history or conviction of any violent crime or animal abuse and (3) a demonstrated ability of either the recipient or a family member to care for and maintain the health of a service dog. Service dogs are given at no cost to recipients; Canine Assistants covers the medical, food and training costs for the lifetime of every dog placed through sponsorships and donations.

Waitlist participants had been approved to receive a service dog but had not yet been placed with a dog. Service dog participants had already been placed with a dog at the time of the study, which involves attending a 2-week placement class at the service dog facility in which recipients learn how to care for, maintain training of, and work with their service dog. Recruited service dog participants were matched to those on the waitlist based on approximate age (± 5 years) and the primary diagnosis of the service dog recipient (e.g., epilepsy, cerebral palsy).

Procedures

The present study represents the qualitative data from a large cross-sectional study; a complete detailed account of procedures is described in Rodriguez et al. 2019 [16]. All potential participants were recruited with an email and a phone call invitation to participate in the study, which consisted of completing a 10–20 min long survey. After informed consent, participants completed the survey online (65%), over the phone (30%) or on paper through the mail (5%). Participant remuneration consisted of a randomized drawing of 20 cash prizes ranging from \$25 to \$100.

By choosing to participate in the study, participants gave consent for the researchers to access their application materials from the service dog provider. Demographic data obtained from applications included the date of waitlist assignment or service dog placement, date of birth, and primary medical diagnosis. Primary diagnoses were categorized into five categories: seizure disorders (e.g., epilepsy, Koolen DeVries syndrome), musculoskeletal disorders (e.g., Duchenne's muscular dystrophy, osteogenesis imperfecta, Charcot-Marie-Tooth disease), neuromuscular disorders (e.g., cerebral palsy, spinal cord injury, spinal muscular atrophy, para/tetra/quadruplegia), developmental or intellectual disorders (e.g., Down syndrome, foetal alcohol syndrome), and a general "other" category (e.g., Type 1 diabetes, cystic fibrosis).

Measures

This study is based on data collected from four open-ended questions given to each participant at the end of the survey. The first three qualitative questions were phrased specifically to capture experiences (for those who lived with a service dog) and expectations (for those on the waitlist). The first question (Q1) asked, "What is (do you think will be) the most helpful aspect of having a service dog?" The second question (Q2) asked, "What does (do you think) the service dog (will) do that helps the most?" The third question (Q3) asked, "What are (do you think will be) the drawbacks of having a service dog?" The final open-ended question (Q4) was worded the same for all participants and asked, "Is there anything else you would like to share to advance the science and understanding of service dogs for individuals with disabilities and their families?" For those who completed the survey online or through the mail, the exact written text was used for analysis. For those who completed the survey on the phone, participants gave consent to record their answers to the open-ended questions which allowed for post-study transcription. For online and mailed surveys, simple grammatical errors and spelling mistakes were fixed by the authors, meaning that some quotes reported are not verbatim to original typed text (e.g., "She's sometimes stubborn" is represented as "She's sometimes stubborn" in the text).

Analysis

This study employed a conventional content analysis to answer whether there were differences between the expected and experienced impact of a service dog. Conventional content analysis is an inductive approach which aims to describe a phenomenon [26,27]. The analysis is appropriate for describing differences between groups when there are no concrete hypotheses. While the researchers did have knowledge about the subject, it was based on the limited amount of existing evidence, particularly for the expectations of individuals hoping to receive a service dog in the future. Codes and themes were not created *a priori*, instead, they emerged directly from the data through the process of open coding [26]. All coding and analyses were conducted with NVivo 11 (QSR International, Melbourne, Australia, 2008) qualitative data analysis software.

The process of developing and refining a coding manual was iterative and dependent on recurrent readings of the entire qualitative dataset. The unit of analysis was defined as a single linguistic clause; each clause was assigned a "code". In clauses which contained multiple codes, two codes were assigned (e.g., "[My service dog] makes me feel safe and

happy” would receive both the codes *Security* and *Joy*). Clauses which could not be interpreted without more context were coded as *Ambiguous*. Codes which were expressed more than once in a single response were coded as *Redundant* (e.g., “Our only drawback is the hair. She is a Golden Retriever – lots of hair.” would only receive the code *Shedding/Hair* once. This was done to accurately account for the percentage in each group that reported each code in their responses. Finally, clauses which were unrelated to the questions asked were coded as *Irrelevant*.

The coding manual was further refined through the establishment of inter-coder agreement. To establish this criterion, a minimum Cohen’s kappa value of acceptability was set to 0.80. Multiple rounds of inter-coder agreement were conducted. In each round, 20% of the data was randomly selected and coded independently by authors JB and SV. The authors conferred after each round and together refined the codes and their definition. A kappa of 0.87 was attained in the fifth round of coding. Author SV then independently coded 100% of the dataset and consulted with author JB as necessary.

Results

Participants

A total of 91 of the 154 participants from the larger study were included for qualitative analysis after the following exclusions. Of the 154 participants in the larger study, 48 had responded as a proxy for those who were either under the age of 13 or unable to complete the survey on their own. These proxy responses were not included in the present analysis to preserve the validity of the data and focus solely on first-hand experiences. In addition, one case was excluded because the service dog had been in the home less than six months (this exclusion criterion was to account for the adjustment period following placement of a service dog; [7]). Finally, 14 participants were excluded as they only partially completed the survey and thus did not receive the qualitative questions at the end of the survey.

Demographic characteristics of the service dog and waitlist groups are displayed in Table 1. Of 91 participants included in this study, 64 were currently living with a service dog while 27 participants were on the waitlist to receive a service dog. Participants on the waitlist had been waiting for placement with a service dog an average of 2.1 years \pm 2.0 years. Participants with a service dog had been placed with their dogs for an average of 5.0 years \pm 3.2 years. Half of all participants (50%) had neuromuscular diagnoses, followed by 28% with seizure disorders, 18% with musculoskeletal disorders, 3% with Type 1 diabetes and 2% with developmental or intellectual disorders. Groups did not significantly differ in age ($p = .119$), gender ($p = .727$), or in diagnosis distribution ($p = .061$). However, those on the waitlist were significantly more likely to have a pet dog living in the home ($p = .029$).

Themes and sub-themes

Responses were coded with an average of 1.97 \pm 1.66 codes per question, and groups did not significantly differ in their response length (service dog group = 2.03 \pm 1.59 codes per response, Waitlist group = 1.83 \pm 1.83 codes per response, $t(89) = 0.524$, $p = .602$). A total of 101 codes describing the expectations and experiences of living with a mobility or medical

service dog were summarized into the two central categories of benefits and drawbacks. These central categories were further split into themes and sub-themes, described below. Table 2 provides the frequency and percentage for each theme and sub-theme for each group.

Benefits

Benefits of having a service dog were mainly described in responses to the first two questions, “What is (do you think will be) the most helpful aspect of having a service dog” and “What does (do you think) the service dog (will) do that helps the most?” The *Benefits* category was split into two themes: (1) Physical Benefits and (2) Psychosocial Benefits.

Physical benefits

A total of 70% of participants with a service dog and 89% of those on the waitlist described physical benefits they’ve received or expect to receive from their service dog. Physical benefits of having a service dog were described in terms of two sub-themes: (1) *Medical Assistance* and (2) *Physical Assistance*. As the central role of the service dogs in the recruited sample was to provide mobility or medical assistance to the individual, this theme was prevalent across responses from both groups but was especially prominent among those on the waitlist.

Medical assistance.—The sub-theme of *Medical Assistance* included responses in which individuals described the service dog’s role in providing alert, response and recovery behaviours for medical events such as a seizure, low blood sugar or a fall. While medical benefits were the most commonly represented physical benefit described, only 31% of those with a service dog mentioned medical assistance in their responses compared to 67% of participants on the waitlist.

Of the codes included in *Medical Assistance*, 25% of all respondents described the service dogs’ abilities to aid with their seizures, reflecting the demographics of the sample. This included the service dog signalling or notifying the participant of an oncoming seizure (“she alerts to my seizures 30 min in advance so I can get somewhere to be safe”), responding to a seizure (“my service dog is the wet nose I get to wake up to after or during a seizure”) or helping the individual cope with their condition (“if I have a seizure, I know I will get through it with his help”).

Another common code in this sub-theme (mentioned by 19% of those on the waitlist and 11% of those with a service dog) was the service dog’s ability to get help in the event of a medical emergency. One individual on the waitlist described how she expects her service dog to “summon help if I fall or faint” while others noted how their service dog will retrieve help in the event of a seizure or hypoglycaemic episode. One participant described how “when [I’m] unable to, my service dog can get my meds, the phone and go get help.”

Physical assistance.—The sub-theme of *Physical Assistance* included responses in which individuals described the service dog’s role in providing assistance for balance,

mobility and tasks involving movement and/or strength. Physical assistance was described in 50% of responses from those with a service dog and 44% of responses from the waitlist.

Within the *Physical Assistance* sub-theme, both those with a service dog and on the waitlist often described the service dog's ability to help with dropped items. A total of 31% of participants with service dogs reported that the dog's ability "to pick things up without having to ask others" was one of the most helpful behaviours. For those on the waitlist, 30% of participants similarly anticipated their future service dog to help with item retrieval ("[the service dog] could help me pick up my dropped pencil, book, toy, utensils, etc. so I wouldn't be embarrassed to ask for help").

Other behaviours in this sub-theme included help with performing tasks and providing a steady physical support for balance. For participants with neuromuscular or musculoskeletal disabilities, responses described how their service dogs have assisted with daily tasks that are difficult to perform such as opening doors or turning off and on lights. For individuals with problems with unsteadiness on their feet, service dogs provided a "4-legged cane for balance." One participant on the waitlist described how she felt that "a cane makes a person feel and look older, not a pleasant feeling" and how she hoped her service dog would provide the stability and balance support that a cane can provide without the stigma.

Psychosocial benefits

Beyond the tangible medical and physical assistance that mobility and medical service dogs provide, both individuals on the waitlist and with a service dog often described the psychosocial benefits they expected or have experienced from being placed with a service dog. Almost all of those with a service dog (98%) described the psychosocial benefits they have received from their service dog. In contrast, only 74% of those on the waitlist anticipated psychosocial benefits from their future service dog, instead discussing the physical benefits they anticipated (see Physical Benefits section). The *Psychosocial Benefits* theme was grouped into four sub-themes: (1) *The Human–Animal Relationship*, (2) *Emotional Benefits*, (3) *Quality of Life Benefits* and (4) *Social Benefits*.

Human–animal relationship.—*The Human–Animal Relationship* was the most referenced sub-theme of *Psychosocial Benefits*, discussed by 80% of those with a service dog and 48% of those on the waitlist. This sub-theme described the powerful and unique relationship that was both experienced and expected from being paired with a service dog.

The most represented code in *The Human–Animal Relationship* theme described the service dog as being a companion or providing the qualities of companionship. The concept of companionship appeared in 44% of responses from participants with a service dog and a similar 41% of responses from those on the waitlist. In fact, when specifically asked what the most helpful aspect of having a service dog was (Q1), 36% of those with a service dog and 30% of those on the waitlist mentioned companionship in their answers. Another commonly discussed aspect of the service dog–handler relationship was the physical company that the service dog provides. One participant with a service dog described how "it's an unnatural feeling when your safety sidekick isn't attached to your hip. I can't imagine any part of my life without her." When describing this phenomenon, individuals

described the dog's actual presence (e.g., "When I feel isolated or cast out, [my service dog] could sit beside me") and their conceptual presence (e.g., "My service dog is the gift of fur, my companion, my confidant...but most of all he is the one who is always there"). Others also described the physical affection received from the service dog's presence (e.g., "kisses when you're sad", "snuggles" and "cuddles").

The use of the words "friendship" and "bond" were exclusively mentioned by those living with a service dog. One participant with a service dog described how "we have more than a relationship, it's a partnership with a powerful bonded friendship." When asked to share anything else (Q4), one participant with a service dog noted how "my life would be difficult and lonely without my service dog, she is my best friend."

A total of 19% of both individuals with a service dog and on the waitlist mentioned love in their responses. This included mentions of love *for* the service dog (e.g., "I love [my service dog] and don't want to live without her"), love *from* the service dog (e.g., "[my service dog] just looks at me with complete and the most forgiving love") or *reciprocated* love ("[my service dog] showers me with love and attention... I can only hope he feels the same from me"). One individual with a service dog also described the service dog as a family member, suggesting a powerful bond both between himself and the service dog, but also with the family.

Emotional benefits.—A commonly described psychosocial benefit was the service dog's ability to provide emotional comfort and support, mentioned in 55% of responses among those with a service dog and 37% among those on the waitlist. One individual described how their service dog "helps probably more emotionally than physically", while an individual on the waitlist argued that "more important than the physical help a service dog can apply may be the psychological benefits...people with any kind of 'handicap' need psychological acceptance and companionship." Other accounts describe the dog being in tune with the participant's emotions or feelings (e.g., "my service dog can sense my feelings" or "She knows when I'm angry or upset and she does everything she can to calm me down"). A particular emotional aspect of having a service dog that seemed to be unanticipated from those on the waitlist was the dog's ability to assist with anxiety management, which was mentioned by 16% of those with a service dog but only 4% of those on the waitlist.

Other codes included in *Emotional Benefits* included the service dog instilling a sense of confidence and motivation in the handler. Both individuals on the waitlist and with a service dog described the expected or experienced increases in confidence from being placed with a service dog (e.g., "Having a disability makes you feel vulnerable. Your confidence is gone. Service dogs give you the comfort you need"). Participants also reported how a service dog can decrease loneliness (e.g., "My life would be difficult and lonely without my service dog") and increase feelings of joy and happiness (e.g., "[My service dog] is my joy when I am down", "[My service dog] makes everyone around me happy").

As many service dogs assisted with medical response or alert, another commonly represented code in responses both on the waitlist and among those with a service dog was the "peace of mind" brought by a service dog's presence. Specifically, the feeling of

security that a service dog can instil was mentioned by 14% of those with a service dog and 15% of those on the waitlist. For example, an individual with a service dog described how “you always know that there is someone having your back” while an individual on the waitlist described how she hoped her service dog would “give me a sense of security, self-confidence, knowing that I have the added protection.”

Quality of life benefits.—*Quality of Life Benefits* were discussed by 45% of participants with a service dog and 33% of participants on the waitlist. This sub-theme included codes describing how having a service dog can bring about positive feelings of responsibility, including adding a routine to the day. Codes in this sub-theme also described the freedom and independence provided by having a service dog. One individual with a service dog stated: “I would not have the freedom I have if I did not have my service dog to help watch over me.” Another shared how her service dog gave her “freedom to do things without my mom being there.” One participant on the waitlist described how “a service dog allows you to live a more independent life,” while another hoped that after getting a service dog “maybe I will be able to get out more.”

This *Quality of Life* sub-theme was also often represented in answers to “Is there anything else you would like to share to advance the science and understanding of service dogs for individuals with disabilities and their families?” in which participants described the service dog being “life-changing.” For example, one individual with a service dog stated “I can’t imagine having my disability and not having my [service dog]. For me, he has given me a new lease on life instead of me being stuck at home.”

Others with a service dog also described the impact that their service dog had on their family (e.g., “[my service dog] has not only changed my life but the lives of my children”). Service dogs were also described to decrease family members’ stress and worry (e.g., “[my service dog] keeps my family from worrying about me”). One individual with a service dog noted that as a result of his service dog’s seizure alert behaviours, “my family hovers less which is nice” while an individual on the waitlist described how he hoped his service dog would provide “relief for family.” One participant with a service dog even noted how “since having [my service dog] my husband’s blood pressure stays more even.”

Social benefits.—*Social Benefits* involved the service dog’s effects on social interactions, relationships or the public’s perception. Social benefits were referenced by 30% of those with a service dog, but only 11% of those on the waitlist. The most represented codes in this sub-theme described positive experiences with community integration, communication with friends or strangers, and positive attention from the public.

Many individuals with a service dog described how their dog positively contributed to their ability to make friends and be social (e.g., “He’s made me more social. He’s made me more relaxed about talking to other people”). In addition, many responses described how the service dog can positively impact conversations. Several individuals described how service dogs can be “a topic of conversation with anyone” and that “[A service dog] helps because people that are able bodied don’t understand the disabled person. The service dog gives a

point of common approach.” Another individual described how their service dog made them feel “more ‘normal’ and approachable in public.”

Another social benefit experienced by those with a service dog involved the public’s perception of them with a service dog. One individual with a neuromuscular disability noted how their service dog “makes the wheelchair disappear” and allows people to see past the disability. Another individual with a service dog noted how “prior to having [my service dog] they saw the chair first and now they see the dog first.” Other social benefits were specific to the service dog’s ability to draw positive attention in public. The service dog provider for which participants were recruited omits the traditional “Do Not Pet” patch in place of a “Please Pet Me” patch on their service dog’s vests. Thus, recipients noted how “since people are allowed to pet [the service dog], it helps people approach me and talk to me.”

Drawbacks

When asked the question “What are (do you think will be) the drawbacks of having a service dog?” (Q3) most individuals both on the waitlist and with a service dog either anticipated or experienced drawbacks. However, 30% of those living with a service dog and 37% on the waitlist responded stating that *no drawbacks* were expected or experienced. For example, one individual with service dog stated “None. There aren’t any. You couldn’t ask for a better companion to be with you all day long. Nothing better.” In addition, two individuals living with a service dog explicitly stated the drawbacks were *outweighed* by the benefits in their answer (e.g., “All of the drawbacks are minor compared to the advantages – it is totally worth it”).

Among individuals who did report drawbacks, four sub-themes from responses emerged: (1) *Dog Care*, (2) *Public Education & Access*, (3) *Life Adjustments* and (4) *Dog Behaviour*.

Dog care drawbacks

The sub-theme of *Service Dog Care* included responses in which individuals described having to provide for either the general or specific needs of the service dog. Care and responsibility for the service dog was the most commonly discussed drawback, mentioned by 44% of participants with a service dog and 37% of participants on the waitlist.

The codes in this sub-theme largely echoed the needs of caring for any pet dog (“like any dog, [my service dog] needs care and sometimes, I’d rather not.”) For example, many individuals discussed how the dog needs walking (e.g., “It’s sometimes hard to get the energy to take my service dog on walk”), feeding (e.g., “Making sure [the service dog] is fed”) and taking to the bathroom (e.g., “Having to maintain a regular bathroom routine [for the service dog] while at school”). Others mentioned veterinary care and financial expenses of having a service dog (“I can’t think of any big drawbacks. But maybe the financial aspect”). One drawback noted that was specific to those with limited mobility was the inability to clean up after a service dog when they go to the bathroom in public (“Being in a wheelchair it is hard to clean up so [the service dog’s waste] becomes someone else’s problem”).

One particular breed-specific drawback was the dog's shedding, mentioned by 9% of individuals with a service dog but no individuals on the waitlist. As one participant with a service dog described: "The shedding factor of a Lab is incredible! [My service dog] sheds no matter what I do to groom him, too. A lot of people I visit don't appreciate me bringing him for that reason."

Public access and education drawbacks

Concerns surrounding both public access and public education were prevalent; this sub-theme was mentioned by 44% of those with a service dog, but only 22% of those on the waitlist. In particular, negative attention from people in public was described by 20% of participants with a service dog, but no participants on the waitlist. This included mentions of other people's unwanted behaviour or judgment as a result of the service dog's presence (e.g., "by having my [service dog], people think that I am mentally challenged"; "In the beginning I did not want a service dog because epilepsy is an invisible disease. Having a service dog now made it visible"). Others described how having a service dog can result in unwanted attention from others (e.g., "[A drawback is] getting stopped by so many people. It's enjoyable at times but when I am rushed I don't want to be rude but I cut people off"; "Sometimes people will stare"). One individual living with a service dog described how the biggest drawback was being looked over in favour of the service dog ("Lots of people know me, mostly as the guy with the service dog, but I don't know them at all or barely").

Drawbacks regarding public access were discussed by both those with a service dog (16%) and those on the waitlist (15%). An individual on the waitlist said that he expects a drawback will be that his/her service dog "may not be allowed some places" while another anticipated the drawback of "people saying [my service dog and I] cannot go in their stores." Only a couple of individuals both with a service dog (3%) and on the waitlist (7%) described the drawbacks of having a service dog in the context of impacting other people. Specifically, one individual on the waitlist was concerned that "some people are allergic to dogs," while an individual with a service dog noted "there are people in my life that are allergic and that's an issue... I wish [my service dog] was a breed that was hypoallergenic to most people."

While not mentioned by any waitlist participants, 11% of those with a service dog mentioned the lack of public education about service dogs as a drawback. This included the public's behaviour in the presence of a service dog (e.g., insisting they need to visit with the dog, stopping the individual to pet the dog; "trying to distract your dog from their job") and the public's lack of education about service dogs (e.g., "a lot of people do not know that service dogs are for people other than blind and deaf. People are not respectful of them because of that." Concerns regarding "fake" service dogs were also only mentioned by participants with a service dog. Specifically, two participants described their negative experiences as a result of other's abuse of public access (e.g., "Fake service dogs cause all sorts of problems where sometimes we are denied entry due to a fake's bad behavior"; "When an untrained dog goes into a public place they ruin it for people who do have a disability and do need their dog with them. You now find yourself being even more discriminated against and turned away because of others").

Lifestyle adjustment drawbacks

The sub-theme of *Lifestyle Adjustments* included both the experienced or expected adjustments necessary in order to incorporate a service dog into aspects of one's life. This sub-theme was mentioned by 19% of participants with a service dog, and 26% of participants on the waitlist.

While establishing a close relationship with a service dog was often mentioned as a benefit (see Human–Animal Relationship), the adjustment of having a service dog as a close relationship was also framed as a drawback. For example, separation from the service dog was a concern for 5% of participants living with a service dog who framed this as being a drawback (e.g., “On the rare occasion that [she] is not with me I feel like I am driving a car without wearing a seatbelt”). In addition, one participant with a service dog stated that “the only drawback would be having to take the dog everywhere with me.” Both individuals on the waitlist (11%) and with a service dog (8%) also mentioned the drawback of having to incorporate the needs of the service dog into their regular daily routine (e.g., “You always have to plan out your days exactly”) or maintaining commitment to taking care of the dog (e.g., “Service dogs can be a lot of trouble if you are not fully committed to their love and care”). The topic of death was only minimally mentioned; only one participant, who was on the waitlist, mentioned the fear of the service dog's future death as a drawback.

Another aspect of lifestyle adjustment from having a service dog involved the needs of the service dog changing the logistical experience of leaving home. This involved the more difficult aspects of traveling with the service dog (e.g., “Getting in and out of our car so much could possibly be a hassle”; “[it] takes time, extra care, and special considerations of having to handle [service dogs] when traveling”) as well as the restraints that a service dog imposes on the ability to travel freely (e.g., “[The biggest drawback is] vacations because we can't take [the service dog] everywhere we go; “There are some places it just doesn't make sense to go if you have a dog with you”).

In addition to routine and travel, other lifestyle adjustments mentioned involved aspects of home life. Concerns about other pets in the home were mentioned solely by individuals on the waitlist, which may have been because individuals on the waitlist were more likely to have a pet dog in the home than those with a service dog. One participant on the waitlist described an anticipated drawback as “three dogs might be a little much” while another stated that “my pet dog (rescue dog) is still very nervous... worried that another dog will upset her.” In addition to concerns about existing pets, one individual on the waitlist described adjustments to her home and yard as an anticipated drawback (“having enough land for [the service dog] to run... [needing] excellent fencing to protect dog from road, cars, etc.”).

Dog behaviour drawbacks

The *Service Dog Behaviour* sub-theme addressed the drawbacks of the service dog's behaviour both in public and in private. Concerns regarding the service dog's behaviour were the least common drawbacks reported by the sample, described by 23% of those with a service dog but anticipated by only 7% of those on the waitlist.

Unwanted service dog behaviours included hyperactivity (e.g., “Sometimes [my service dog] jumps on other people and gets a little hyper”; “When people come over ... [my service dog] can get a little hyper and takes her a couple minutes to settle down”), or other difficult traits (e.g., “Sometimes [my service dog] is stubborn”). Others with a service dog described their dog’s social needs as a drawback (e.g., “[My service dog] often is paying attention to others instead of me”; “[My service dog] has to be petted all day every day”). In addition, several individuals both on the waitlist and with a service dog noted the need for or the experience of training the service dog as a drawback (e.g., “Training continues. It is a constant work in progress”; “Just because it is already trained, doesn’t mean it is trained to your lifestyle”).

Other concerns

Several other concerns regarding service dogs that were not specifically benefits or drawbacks were described in the final question, “Is there anything else you would like to share to advance the science and understanding of service dogs for individuals with disabilities and their families?” (Q4). A total of 3% of participants with a service dog and 15% of participants on the waitlist described a general need for service dogs in their responses (e.g., “The most pressing matter is the amount of kids that need service dogs don’t get them”). Those on the waitlist specifically expressed concerns regarding acquiring a service dog (e.g., “[The] only problem with ... service dogs is getting one because the process is difficult”). Three individuals with a service dog also recommended service dogs to others (e.g., “I would recommend a service dog for anyone with a significant disability”), or provided advice for future service dog owners. This included specific advice (e.g., “Don’t give up on your service dog, just give them some time”) as well as acknowledging that all service dog owners are paving the way for future owners (e.g., “Educate, not confront [people in the community] ... This will prepare the way for future service dog owners”).

Discussion

This study assessed the expectations and experiences of being placed with a mobility or medical service dog in a diverse sample of individuals with physical disabilities and chronic conditions. By comparing anticipated experiences (from those on the waitlist to receive a service dog) to actual experiences (from those currently placed with a service dog), a content analysis produced two themes categorizing both *Benefits* and *Drawbacks* of being placed with a mobility or medical service dog. A comparison of response frequency across group revealed several aspects of owning a service dog that were perceived by both groups as well as aspects which were relatively unanticipated by those on the waitlist. In addition, the study’s findings provide an in-depth exploration of benefits and drawbacks to the service dog relationship in the own words of service dog owners, providing a rich description of expectations and experiences to complement both the design and interpretation of quantitative research in the field.

Findings from this research are novel, as they represent one of the first explorations of the differences in expectations versus experiences among service dog applicants and recipients using a content analysis approach. Notable group differences were observed regarding the perceived benefits of owning a service dog. Specifically, when asked about the most helpful

aspect of having a service dog, the majority (89%) of those on the waitlist anticipated benefits that were physical (compared to 70% living with a service dog), while nearly all (98%) of those with a service dog described benefits that were psychosocial (compared to 74% on the waitlist). These differences suggest that service dog applicants most often expect physical benefits to be the most helpful part of having a service dog, while those already paired with a service dog focus on the psychosocial benefits. It is not surprising that waitlist applicants expect a high proportion of physical assistance benefits, given that the anticipated physical, functional and medical benefits constitute the purpose of seeking out a mobility or medical service dog. However, our findings suggest that the experienced value of a service dog extends *beyond* traditional physical assistance to domains that may be unexpected by many service dog applicants and especially meaningful to those already partnered with a service dog.

Benefits

The most widely represented psychosocial benefit was the human–animal relationship, discussed by 80% of those with a service dog and 48% of the waitlist. While companionship from the service dog was the most highly represented code among both groups, those with a service dog described their relationships with their dogs using the words “friendship” and “love” which reflected the perceived strength of this unique bond. This mirrors findings from several studies that have found the service dog’s companionship to be a central characteristic underlying the perceived benefits from the service dog–owner relationship [9,10,25,28]. This study expands upon previous knowledge by revealing that the strength and magnitude of the human–animal relationship may not be a specific benefit expected by those on the waitlist to receive a service dog.

The second most discussed psychosocial benefits were emotional benefits, including feelings of confidence, security and joy. Emotional benefits were discussed by 55% of those with a service dog and 37% of the waitlist. The high prevalence of emotional benefits in this study support findings from previous research indicating that the addition of a service dog into one’s life can increase feelings of self-worth and safety while contributing to higher positive affect [6]. For example, a survey of 24 individuals with a mobility or hearing service dog found that 92% of participants indicated they felt safer since obtaining their service dog, 70% reported having higher confidence and 70% felt less depressed and had better control of their anxiety [8]. Further, retrospective studies among individuals with diabetic alert service dogs or seizure response service dogs also suggested owners experienced decreased worry, improvements in mood, and decreased feelings of anxiety [29,30]. Thus, findings from both the current study and previous research indicate that service dogs may provide significant emotional support to improve self-worth, perceived safety and positive affect among those with disabilities or chronic conditions.

Improvements to quality of life were an additional psychosocial benefit both experienced (45%) and expected (33%). Quality of life benefits included the service dog’s ability to provide increased freedom, independence, and improvements to overall daily functioning. Several studies have described the use of mobility service dogs as a unique assistive technology option to improve functional ability and participation among those with physical

limitations. A longitudinal study of 24 long-term manual wheelchair users found that the addition of a mobility service dog was not only associated with decreased pain and exertion, but also was associated with increased reintegration into normal life, increased ability to navigate their environment, and increased occupational performance [4]. Additionally, studies of medical service dogs suggest the service dog's alert or response behaviours can provide feelings of freedom, safety and independence, especially in public or when unaccompanied by a caregiver [30]. These improvements to quality of life likely co-occur with the emotional and psychological benefits of improved mood, increased confidence, and higher overall satisfaction with life.

Finally, the last category of psychosocial benefits included those that occur in a social context, described by 30% of service dog owners but only 11% of applicants on the waitlist. Many participants with a service dog specifically cited the benefit of receiving positive attention from people in public, a phenomenon replicated in other published studies. For example, an observational study found that an individual in a wheelchair with a service dog was smiled at and approached more by strangers when they were with a service dog compared to when they were alone [12]. Further, studies have found that the presence of a service dog can produce a more positive implicit attitude bias towards individuals with physical disabilities [31]. Similarly, a retrospective study of 202 individuals with physical disabilities with service dogs found that 100% of respondents reported that more people approached them in public while 87% reported their social interactions increased [10]. Our study builds on these results by suggesting that among those anticipating a future service dog, these social benefits may be unexpected or relatively insignificant in comparison to the anticipated emotional benefits, quality of life benefits, and the human–animal relationship. This finding is similar to that of a 1996 study in which 77% of current hearing dog owners said that their dog had made a difference in social interactions within the community while only 29% of those on the waitlist anticipated this benefit.

Drawbacks

In addition to the benefits expected or experienced, both those with and without a service dog described a range of drawbacks to having a mobility or medical service dog. However, when asked to report on experienced drawbacks, 30% of participants with a service dog stated that there were *no drawbacks* to having a service dog. This finding mirrors that of other service dog studies. Specifically, Rintala et al. found that 39% (7/18) of participants with a mobility service dog did not have drawbacks to report [11] while Camp indicated that drawbacks were not often discussed by participants, but rather difficulties were framed as “responsibilities” or “challenges” [25]. When asked to report on anticipated drawbacks, 37% of participants on the waitlist similarly reported that they did not expect any drawbacks from their future service dog. This finding suggests that a majority of those on the waitlist do in fact perceive future drawbacks of having a service dog, revealing realistic expectations.

The most common drawback discussed by participants both with a service dog (44%) and without (37%) involved responsibilities surrounding the dog's care and maintenance. In particular, responses described responsibilities surrounding routine pet-care tasks as well as the impacts of shedding and grooming on owner's lives. Of the studies that have examined

drawbacks of service dog ownership, most have also described the difficulties surrounding dog maintenance [10,11,25]. Davis et al. found that caregivers of children with a service dog reported spending 6.2 h a week and an average of \$1307 a year caring for the service dog, with 29% and 24% considering this time and cost burdensome, respectively [24]. In a study of Japanese individuals with physical, hearing or visual impairments who had chosen not to pursue a service dog as a form of assistive technology in their lives, 50% of participants with orthopaedic disabilities cited “They are hard to care for” as a reason for not obtaining one [32]. While maintaining a service dog’s eating, walking and bathroom schedule may be trivial to healthy adults, for those with impairments these added responsibilities may represent a substantial challenge.

The second most commonly discussed drawback was difficulties with public access and education, experienced by 44% of those with a service dog and 22% of individuals on the waitlist. Many individuals with a service dog specifically described difficulty with experiencing discrimination due to being with a service dog in public as well as a lack of public education on service dog etiquette and access. This mirrors findings from other studies in which a large proportion of service dog owners have described the frustration and difficulties experienced by public access and discrimination [10,24]. In fact, a survey of 482 service dog owners in the United States found that 68% of participants reported experiencing daily discrimination because of their service dog, which was especially prominent for those with “invisible” disabilities [33]. Further, 42% of participants reported that they often received “invasive personal questioning” while accompanied by the service dog, 50% reported choosing not to take their service dogs in public because of unwanted attention, and 77% reported that the legitimacy of their service dog was sometimes questioned [33]. While having a service dog in public may result in a variety of social benefits for service dog owners, it seems that the service dog’s presence may also contribute to negative experiences in the community. Further, as those on the waitlist rarely mentioned drawbacks in this category, issues with public access and education may be a relatively unexpected aspect of having a service dog.

In addition to the service dog’s care and issues with discrimination in public, there were several lifestyle adjustments framed as a drawback by 19% of those with a service dog and anticipated by 26% of those on the waitlist. These adjustments included changes to routines, traveling or separation limitations, and home adjustments. Camp also found most of the 10 participants with a service dog interviewed described the patience and frustration involved in the initial “adjustment period” of incorporating the service dog into their routine and life [25].

Limitations

This study is not without its limitations. As this was a cross-sectional study, we were unable to determine the extent to which benefits and drawbacks of having a service dog may potentially change with time. Future research will benefit from pursuing longitudinal designs to understand the trajectory of experiences with a service dog. Another limitation to the interpretation of findings was a potential selection bias in participants. As this was a voluntary study, there is a possibility that those who had relatively positive experiences with

their service dog were more likely to participate in the study and share their experiences than others. A final population limitation was that pet dog ownership was unequal across groups, with the waitlist significantly more likely to have a pet dog in the home than those with a service dog. However, this difference was accounted for in a separate analysis of quantitative findings from this study on standardized surveys, and the effect on psychosocial outcomes was negligible [16].

The use of an open-ended format questionnaire to gather qualitative data had both positive and negative aspects. The benefit of this design was that this gave participants an opportunity to describe their thoughts in their own words, allowing us to describe responses using participant-reported themes rather than predetermined themes (as would be the case with a checklist or ranking of benefits and drawbacks). However, we were unable to determine the relative weighting of benefits and drawbacks within and across individuals. Even though we did frame questions using rank-promoting language (i.e., “What is the most helpful aspect of having a service dog?”) it is possible that certain benefits may be more or less meaningful to quality of life than others. Additionally, we were unable to understand the relative severity of the drawbacks and how they potentially impact wellbeing. Specifically, because we could not probe participants for a deeper discussion, it is unclear if a stated drawback is viewed as simply a nuisance or has negatively impacted a service dog recipient’s psychosocial health or quality of life. Future research would benefit from semi-structured or more in-depth interviews to allow for that kind of understanding.

An important consideration of this research is that we omitted caregiver/parent-proxy reported data to solely capture the views of service dog applicants and recipients themselves. This limited the sample to those who were older than 13 and possessed the capacity to report on their own behalf, which excluded those who were nonverbal or intellectually impaired. Future research will benefit from including this important population of service dog owners, who may have unique experiences or face different challenges than those who are more independent. For instance, future studies may focus on the benefits and drawbacks of having a service dog from the perspective of children who bring their dogs to school with them or from the perspective of a caregiver for a nonverbal adult child.

A final limitation of the study is that we cannot determine whether the same pattern of expectations and experiences would be generalizable to other types of service dogs (guide, hearing or psychiatric) and their owners. In this context, it would be beneficial to know if there are certain aspects of service dog ownership that are commonly experienced by all owners (e.g., the human–animal relationship) or if there are aspects that may be particularly salient to one type of service dog owner (e.g., those with an “invisible” disability or those who are severely socially isolated). As the study population in this research was limited to those with seizure disorders, mobility limitations or diabetes, some of the emergent themes in the qualitative analysis (e.g., medical assistance) are likely a product of our sample and limited to a certain type of service dog. However, some themes (e.g., emotional benefits) may be generalizable to other types of service dogs, emotional support dogs or companion dogs in general. In addition, the sampled population of service dog owners were recruited from a single service dog provider, so findings may reflect characteristics specific to the provider. For example, the service dog provider Canine Assistants focuses heavily

on the human–animal bond during the service dog–owner matching and training process, which may have had an impact on the relative frequency of the perceived human–animal relationship benefits.

Implications and future directions

This study’s findings have important implications for occupational therapists and rehabilitation professionals. Understanding the positive and negative lifestyle changes experienced by those with a service dog, professionals recommending this practice can gain a better understanding of both the benefits and challenges that clients may expect and experience. As this study directly compared the expectations of those on the waitlist to the real-life experiences of those with a service dog, findings also provide professionals with information regarding effects of the service dog–owner relationship that may be unanticipated. This may help prepare individuals who are planning to apply for a service dog realize the future challenges and changes to their lives that may occur, thereby potentially facilitating the initial adjustment period.

This research highlights the need to include and measure both the positive and negative aspects of service dog ownership into future studies. Specifically, quantitative studies investigating the potential effects of service dog ownership on psychosocial health and quality of life will benefit from incorporating standardized measures of both the human–animal relationship as well as drawbacks into future research. An example of a standardized measure that captures both the human–animal relationship as well as the daily maintenance and responsibility of caring for the dog is the Monash Dog–Owner Relationship Scale [34]. For caregivers of those with severe impairment who may be responsible for both the handler *and* the service dog’s health and wellbeing, it may be useful to adapt a caregiver burden scale for measuring the responsibilities surrounding the service dog’s care into their routines. Finally, as public discrimination was commonly reported both among our sample and others [e.g., 33] service dog-related discrimination is likely to be of particular importance to consider when measuring psychosocial wellbeing and social functioning in this population.

Conclusions

In conclusion, this study compared the expectations and experiences of both future and current mobility and medical service dog owners to describe the benefits and drawbacks to service dog ownership. Results suggest that in combination with the medical and physical benefits the service dog is trained to provide, those with a service dog experience substantial psychosocial benefits from their service dog’s assistance and companionship to a degree that may be unanticipated by future service dog owners. The study’s findings provide evidence to suggest that the social, emotional, and quality of life benefits from a service dog’s assistance and companionship are an important aspect of the service dog–owner relationship. Further, the drawbacks of having a service dog, specifically those that involve the service dog’s behaviour and public access and education, are important considerations to prepare those anticipating the addition of a service dog in their lives.

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IMPLICATIONS FOR REHABILITATION

- When asked about helpful and important aspects of having a service dog, 98% of service dog owners described the psychosocial benefits of their dog's assistance and companionship.
- The human–animal relationship was the most discussed psychosocial benefit from both current owners as well as those on the waitlist, demonstrating the unique strength of the service dog–owner bond in this population.
- Those on the waitlist to receive a service dog did not anticipate as many drawbacks as current owners described. In particular, difficulties with public access and education as well as dog behaviour were commonly experienced, but not expected, drawbacks to service dog ownership.
- Findings identify aspects of having a service dog that may be unanticipated or overestimated by those on the waitlist, providing rehabilitation professionals with a basis for preparing those who may be considering incorporating a service dog into their lives.

Table 1.

Demographic and clinical characteristics of participants across group.

	Group			Group difference		
	Waitlist (<i>n</i> = 27)	Service dog (<i>n</i> = 64)	Total (<i>N</i> = 91)	<i>t</i>	χ^2	<i>p</i>
Age, years, <i>M</i> (S.D.)	38.30 (20.23)	31.34 (15.79)	34.82 (18.01)	-1.593		.119
Female, <i>n</i> (%)	15 (56%)	33 (52%)	48 (53%)		0.121	.727
Primary diagnosis category, <i>n</i> (%)					8.987	.061
Seizure	9 (33%)	16 (25%)	25 (28%)			
Musculoskeletal	5 (19%)	11 (17%)	16 (18%)			
Neuromuscular	10 (37%)	35 (55%)	44 (50%)			
Developmental/intellectual	0 (0%)	2 (3%)	2 (2%)			
Diabetes	3 (11%)	0 (0%)	3 (3%)			
Has a pet dog, <i>n</i> (%)	19 (70.37)	29 (45.31)	48 (52.75)		4.784	.029

M: mean; *S.D.*: standard deviation; *n*: partial sample size; *N*: total sample size; %: percentage of participants.

Table 2.

Number and percentages of participants in each group reporting themes and sub-themes.

	Waitlist (<i>n</i> = 27)	Service dog (<i>n</i> = 64)
<i>Benefits</i>		
Physical	24 (89%)	45 (70%)
Medical assistance	18 (67%)	20 (31%)
Physical assistance	12 (44%)	32 (50%)
Psychosocial	20 (74%)	63 (98%)
Human–animal relationship	13 (48%)	51 (80%)
Emotional	10 (37%)	35 (55%)
Quality of life	9 (33%)	29 (45%)
Social	3 (11%)	19 (30%)
<i>Drawbacks</i>		
None	10 (37%)	19 (30%)
Drawbacks	18 (67%)	52 (81%)
Dog care	10 (37%)	28 (44%)
Public education and access	6 (22%)	28 (44%)
Lifestyle adjustments	7 (26%)	12 (19%)
Dog behaviour	2 (7%)	15 (23%)

Values represent the total number and percentage of participants in each group whose qualitative responses contained a code classified in each listed theme or sub-theme.