

ARTICLE



The pet project: A qualitative exploration into the experience of pet ownership following spinal cord injury

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STUDY DESIGN: Qualitative study

OBJECTIVES: To explore the unique experience of facilitators, barriers, rewards, and challenges related to pet ownership after spinal cord injury (SCI).

SETTING: Zoom for Healthcare videoconferencing platform hosted from an American neuro-rehabilitation hospital in Colorado.

METHODS: Sixteen individuals with SCI participated in three semi-structured focus groups of 5–6 participants each. Resulting discussions were transcribed and coded using a hybrid approach to thematic analysis.

RESULTS: Experiences of pet ownership were categorized by their representativeness of four key themes: facilitators (conditions that make obtaining or maintaining pets easier), barriers (conditions that were prohibitive or that prevented people from having pets), rewards (benefits of pet ownership), and challenges (difficulties associated with pet ownership). Participants cited equipment, tools, and services as the most common facilitator for owning pets after SCI, with environment being the most commonly cited barrier. Companionship, love, and comfort/security were most commonly cited as rewards, while mobility was cited as a primary challenge of pet ownership after SCI. Additionally, two unexpected response themes emerged. Positive outweighs negative included assertions that benefits of having pets were not overshadowed by drawbacks, and Wishlist included desires for training and access to tools to facilitate pet ownership.

CONCLUSIONS: Pet ownership is largely unexplored in individuals with SCI. Participants in this study indicated that pet ownership provides many benefits, though it is not without its challenges. Participants also noted the desire for training and resources to make pet ownership more accessible. Further exploration into informing development of those tools is warranted.

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INTRODUCTION

An estimated 17,900 new spinal cord injury (SCI) cases occur annually affecting between 252,000 and 373,000 individuals across the United States (US) overall [1]. While the natures and outcomes of SCI vary widely, SCI is a chronic health condition that influences myriad physical, social, and economic aspects of human life [2]. Beyond effects on physical health, there exist potential negative impacts to psychosocial health such as changes in health-related quality of life [3], decreased societal participation [4], and increased risk of depression [5]. Given the risk of negative outcomes following injury, it is helpful to understand what may buffer against them and promote better quality of life.

The bulk of animal-related research for individuals with physical disability pertains to service animals rather than non-working companion animals or pets. The Americans with Disabilities Act defines service animals as dogs trained to perform an assistive task related to an individual's disability [6]. In contrast, pets are kept for the purpose of companionship and can be diverse animal species. The American Veterinary Medical Association estimates that, across American households, 38.4% have dogs, 25.4% have cats, 2.8% have birds, and 0.7% have horses [7].

Research shows that there are health benefits to having pets. For the general population, pet ownership is related to fewer

doctor visits [8] and decreased cardiovascular reactivity [9]. From a psychological health perspective, pet owners in the general population score better on measures of emotional well-being reflecting higher self-esteem, greater extraversion, more conscientiousness, and less loneliness and fearfulness [10]. Furthermore, pet owners experience greater social capital, which is characterized by receiving or experiencing a benefit (e.g., greater trust, feelings of safety, stronger social connections) through community social interactions [11]. Studies also show that providing care for a pet can improve mental well-being [12].

Pet ownership also has been found to benefit individuals affected by chronic conditions. In a systematic review involving pets and mental health, 15 of 17 reviewed studies reported positive effects of pet ownership for people with mental health conditions [13]. This review revealed that pets reportedly enhanced mobility, fostered social communication, and were linked to higher scores on meaningful activity scales. This review also identified themes of comfort, alleviation of worry, mitigation of loneliness, and increased social interaction in relation to pet ownership. Further research has explored the effects of pet ownership on elderly adults, which often serves as a proxy population [14] for individuals with physical disability [15]. Such research found owning a pet dog increased motivation to be

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physically active, provided psychological comfort and companionship, and promoted social support [16].

A review analyzing the potential benefits and challenges of pet ownership for elderly adults found that elderly adults reported receiving psychological, physical, and social benefits from their pets [17]. In contrast, the review highlighted potentially harmful effects of pet ownership on older populations. The authors noted that pet ownership may have negative financial impacts, such that lifetime care costs were estimated to range from \$8000 upward. Infection and traumatic injuries were also noted as potential risks to pet ownership. As elderly adult populations who own pets have been more frequently studied than pet owners with physical disability, these studies serve as a basis for understanding pet ownership in a SCI population.

The existing body of literature provides a wealth of information on the advantages and drawbacks of service dog ownership in relation to chronic illness and disability, as well as the benefits and barriers to owning companion pets in the general population and the aging community. While these statistics are relevant to the SCI population, they are not specifically indicative of the experience of having pets after SCI. Thus, the primary aim of the current project is to address the substantial gap in the literature on the experience of having companion pets after SCI, with specific focus on examining perceived barriers to and facilitators of pet ownership, as well as the rewards and challenges of having pets.

MATERIALS AND METHODS

The present study was completed at an American neuro-rehabilitation hospital in Colorado with approval from the local institutional review board. Participants were recruited through organizational social media posts advertising participation in a study related to pet ownership directed toward former hospital patients and community-dwelling individuals with SCI. Interested individuals contacting hospital research staff were given a detailed description of what study participation involved and screened for eligibility. To be included, individuals needed to meet the following criteria: (a) age 18 years or older, (b) one or more years post-injury, (c) experience residual SCI-related sensory and/or motor deficits, (d) English speaking, and (e) able to access the internet from a video-capable device (e.g., laptop/desktop computer, smartphone) with either current access to or willingness to download Zoom. In order to include as many perspectives as possible, individuals were invited to participate regardless of whether or not they currently or had ever owned a pet. Those meeting eligibility criteria provided availability for a focus group. Following screening, a one-on-one meeting occurred between the participant and study staff via videoconference using the HIPAA-compliant Zoom for Healthcare platform [18] to review the consent form, which was signed using DocuSign [19], and to complete a demographics questionnaire. Based on reported availability, participants attended one of the three completed focus groups, also conducted via Zoom.

A total of 16 individuals consented and attended a focus group, each comprising 5–6 participants. In order to broach the topics of interest, we developed a discussion guide for facilitating conversation during the focus groups. This guide followed a semi-structured interview format to elucidate the rewards and challenges of owning a pet, and to better understand the facilitators of and barriers to having pets after injury. Principal investigators led the discussions, supported by two note takers. In order to ensure participants' confidentiality, individuals chose an alias to use as their on-screen video identifier over Zoom. Utilizing Zoom allowed for direct audio recording (video recordings were deleted immediately following each group), and those recordings were transcribed using Otter.ai software [20]. Transcriptions were verified against audio recordings for verbatim accuracy, then audio recordings were deleted leaving de-identified transcriptions for analysis.

Collected demographic variables comprised: age, gender, race, ethnicity, marital status, residence type, education level, insurance provider, veteran status, use of Veteran Administration-provided resources in the past 12 months, occupational status, household income level, and current pet ownership status. Variables representing injury characteristics included: injury date (for calculating time since injury), etiology, completeness (complete/incomplete), and injury level (tetraplegia/paraplegia).

Data analysis

Demographic and injury characteristics were analyzed descriptively using Microsoft Excel [21]. Categorical variables were characterized by counts and percentages, and continuous variables were characterized by means and standard deviations.

Our sample size was driven by the aim to reach thematic saturation. We operationalized saturation in a manner similar to Guest, Bunce, and Johnson, considering this to be the point at which few to no new sub-codes were identified during transcript review [22]. Group transcripts were coded via the qualitative analysis software, DeDoose [23]. The hybrid approach to thematic analysis [24] we used involved employing a template approach to pre-define a codebook of parent codes [25] (rewards, challenges, barriers, and facilitators) to guide the sub-coding of excerpts while also allowing for inductive code development for meaningful excerpts that did not fit under the pre-defined parent codes. We independently applied sub-codes to relevant transcript excerpts and organized them under the parent codes, then collaboratively resolved coding differences and converged on final coding patterns. Excerpts were reviewed to verify appropriateness of assigned codes. Where applicable, initially identified sub-codes were reduced and/or collapsed for greater thematic cohesion.

RESULTS

Demographic and injury characteristics for the study sample are displayed in Table 1. Participants in this sample were largely female, not married, and of non-Hispanic White race/ethnicity. The majority of participants completed at least some college, and just over one third of the sample was employed. Transport incidents were the most prevalent SCI etiology in this group. The sample was split evenly on injury level with half of participants reporting tetraplegia and half reporting paraplegia; the majority of all injuries were incomplete.

Facilitators of pet ownership

We defined facilitators as conditions that made obtaining or maintaining pets easier. The most frequently cited facilitators were equipment, tools, and services. Participants also identified support and help from others and preparedness/strategy-building as key facilitators.

Equipment, Tools, and Services: "I found the higher, like they have raised bowls for cats versus the flat bowls, so that helps a little because I don't have to bend this far to get to that bowl to keep her food." [S104]

Support and Help from Others: "I've got a friend who worked with bomb sniffing dogs over in Afghanistan and Iraq, and I would just kind of pick his brain very often to see what kind of techniques that he was using in all different areas, so I was lucky to have good resources to kind of help me along the way." [S113]

Preparedness/Strategy-Building: "...the process of pet ownership should start well before you actually have that pet, right. So thinking about your surroundings, thinking about your kids and, and, you know, what would be best for you and the animals you can care for." [S115]

Barriers to pet ownership

Barriers were defined as conditions that were prohibitive or that prevented people from having pets. Despite specific prompting to share barriers, very few were identified. The only barrier cited repeatedly was environment.

Environment: "One of the biggest boundaries I faced, or barriers when I first got home was I was looking for a handicap accessible apartment, and a lot of the apartments that I was looking at,

Table 1. Participant sociodemographic and injury characteristics.

Continuous variables	n	M (SD), range
Age (years)	16	40.81 (17.74), 19–66
Time since injury (Years)	16	7.2 (6.67), 1–23
Categorical variables	n	%
Gender		
Female	9	56.25%
Male	7	43.75%
Race		
White/Caucasian	12	75.00%
American Indian/Alaskan Native	1	6.25%
Asian/Pacific Islander	1	6.25%
Multiracial/Other	2	12.50%
Ethnicity		
Not Hispanic or Latino	14	87.50%
Hispanic or Latino	2	12.50%
Marital status		
Single/Never married	9	56.25%
Married	7	43.75%
Education level		
Less than HS/GED	1	6.25%
HS/GED	1	6.25%
Some college	6	37.50%
Completed college degree	8	50.00%
Occupational status		
Employed	6	37.50%
Student	3	18.75%
Retired	2	12.50%
Unemployed	5	31.25%
Household Income		
Less than \$25,000	5	31.25%
\$25,000–\$49,999	2	12.50%
\$50,000–\$74,999	1	6.25%
\$75,000 or more	7	43.75%
I don't know	1	6.25%
Injury etiology		
Transport	7	43.75%
Sports	3	18.75%
Assault	2	12.50%
Fall	2	12.50%
Non-traumatic injury	2	12.50%
Injury level		
Tetraplegia	8	50.00%
Paraplegia	8	50.00%
Injury completeness		
Incomplete	12	75.00%
Complete	4	25.00%
Pet ownership		
Dog(s)	7	43.75%
Cat(s)	2	12.50%
Multiple animal species	2	12.50%
None	5	31.25%

they didn't allow dogs unless they were a registered service animal, and that wasn't the case for me. So just being able to find an acceptable location that fit both my needs and my pet's needs." [S113]

Rewards of pet ownership

Participants reported many themes related to the rewards of having pets, chiefly companionship, love, comfort/security, and support. Rewards were defined as things that were positive or gained by virtue of having pets.

Companionship: "...yeah, it's nice to just have the companionship and just to have someone there even if it is silly that you're talking to a cat. You know, at least you're not talking to a wall." [S104]

Love: "...it's just love, you know. They love you for who you are and they'll be there on your best and your worst days." [S105]

Comfort/Security: "The animals kind of fill in that gap to just, again, spend time and be attentive, and I find that very relaxing and calming for my spirit." [S107]

Support: "I can't imagine my life without my dog because she just helps me cope with, helps me cope with the extreme pain I live with. And she's always there for me." [S108]

Challenges of pet ownership

In contrast to rewards, participants reported facing challenges, which were defined as things that were difficult, but not prohibitive, about having pets. The most frequently mentioned challenges were mobility, responsibility, and environment.

Mobility: "It makes me very nervous sometimes if my dogs were to decide to just run, just to go. I couldn't really just be like, 'Oh, gotta chase after him!' I would just panic, I would-- I wouldn't know what to do, I'd be... Yeah, that's just one thing that is always in the back of my head, or if like I'm on the sidewalk, and they want to go that way but there's curbs... There's just a lot that could go wrong." [S111]

Responsibility: "So I don't have a dog or pet, but I think one of the biggest challenges for me would be like the guilt of feeling like, okay I'm bringing another thing in the household and I myself need a lot of care, and I would feel bad to kind of put that on, on somebody else as well..." [S114]

Environment: "I live in an apartment complex, and they're still building stuff so, um, how do I explain? Well like the area where they want us to take the animals to go to the bathroom isn't accessible at all. It's like up a grass hill. And so I'm like, okay, um, am I gonna get in trouble if they go over here because there's signs that say like, no pets, like your pet can't use bathroom here. But then at the same time I'm like well, I can't really get to the area you want me to be able to go." [S111]

Beyond the four pre-defined parent codes of initial interest, two codes were developed inductively. In addition to participants routinely noting positive and negative aspects of pet ownership, they also identified how those positives often outweighed the negatives. We defined this code group as "positive outweighs

negative." Here, participants often cited love and joy/happiness as specific positives that outweighed the negatives or difficulties in pet care:

"I think that, you know- ultimately I think most of us will agree that, that it is, it is worth it. The love and the benefits we receive highly outweigh the difficult things we might have to go through." [S115]

"So, I'll always have a dog, even though it is physically challenging. The benefit of having one outweighs all of that." [S108]

We defined the final code group as "wishlist" which comprised excerpts related to desired resources that were not available. Of frequent mention was the wish to have a training program on caring for pets after SCI. Suggestions for this training included exposure to tools and strategies for adaptive pet cares, opportunities to habituate pets to wheelchairs, and training appropriate behaviors (e.g., not pulling a leash while walking with someone in a wheelchair).

"So I think something along those lines of just, maybe it's if an OT [occupational therapist] or even a rec therapist knows that you have a dog just either bringing that up for anyone in that position or just having some sort of resources to help kind of bring up an idea. Even simple things like feeding or walking a pet, I think it'd be really helpful just because you know all pet owners want to get back to that as much as possible." [S101]

DISCUSSION

The objective of this study was to examine perceived barriers to or facilitators of pet ownership, and to explore the rewards and challenges of pet ownership after SCI. Results reveal that, while there are many facilitators of post-injury pet ownership, there are still barriers. Additionally, results indicate that the experience of having pets after SCI can be rewarding, but it is not without challenges.

Many of our findings on the benefits of having pets mirror those reported for previously-researched populations. Studies find that the benefits of having pets include love, understanding and comfort [26] as well as companionship [16]. These sentiments were echoed by participants in the present study who described their relationships with pets as beneficial or essential to their lives. This perception is nothing new; the human-animal bond has long been regarded as "essential" to human health and well-being [27]. Participants in the present study further noted that pets provided escape, entertainment, and opportunities for social interaction. This supports previous research on animals and social engagement finding that strangers were more likely to approach and engage in friendly conversation with individuals in wheelchairs accompanied by service dogs [28]. Another benefit reported by participants in the present study was pain relief. This is consistent with previous research on individuals recovering from spinal cord stimulator implantation, in which those with pets reported lower pain scores after surgery [29].

In contrast to benefits reported by our study participants, challenges were reported in near-equal measure. These included pet care and maintenance, finances, mobility, and motor function. It is important to highlight that, despite the challenges reported, many participants were quick to note that the positives of pet ownership outweighed the negatives. In the face of those challenges, including the death of a pet, participants often stated that these hardships did not overshadow the love, companionship, and joy derived from having pets. This valuation suggests the

need for further exploration into accessible pet ownership, as evidenced by the "wishlist" code group. Participant contributions suggest that individuals with SCI have strong interest in having pets, but would like guidance in managing the process of discharging home to existing pets or acquiring a new pet. Common desires included more support in caring for pets before leaving rehabilitation and education about available resources. Thus, a natural direction for future research can involve partnership with clinicians in program development focused on pet ownership after SCI.

The results of the present study also lay groundwork for future research. These data have the potential to inform a quantitative study of post-injury pet ownership, the results of which would aid in identifying opportunities for educating patients on the care of pets both present in the home before injury and acquired following injury. This line of research may also inform the development of strategies to overcome barriers to pet ownership.

Limitations

Per the demographic and injury characteristics reported in Table 1, our sample may not fully represent those of the US SCI population [30]. Most participants had pet dogs, so findings may not generalize to individuals with SCI who own other animal species. Even so, our sample provides a novel viewpoint on the experience of owning a pet after SCI.

CONCLUSION

To date, this is the only study that has explored how people with SCI experience pet ownership. Given that this study was exploratory in nature, there is much room for growth. Future research should seek to identify rates of pet ownership among people with SCI, explore inclusion of companion animals into therapeutic practice, and examine relationships between companion animals and psychosocial health among individuals with SCI.

DATA AVAILABILITY

Data utilized in the current study may be made available from the corresponding author upon reasonable request.

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AUTHOR CONTRIBUTIONS

BM contributed by developing the study, overseeing the study procedures, interpreting the results, and writing the paper. AW contributed by developing the study, managing the data, interpreting the results, and writing the paper. DE and MP contributed by developing the introduction and discussion, and editing the paper. JC contributed by supporting data collection and editing the paper. SC contributed by supporting study development and data collection, and editing the paper.

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COMPETING INTERESTS

The authors declare no competing interests.

ETHICAL APPROVAL

All procedures for the completion of the present study were reviewed and approved by Craig Hospital's IRB of record, HCAHealthOne, in accordance with all applicable ethics regulations.

ADDITIONAL INFORMATION

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1038/s41394-022-00549-z>.

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