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**Beyond Stories: Evidence-Based Benefits of Psychiatric Assistance Dogs for Youth**

Steffie Van Der Steen<sup>1\*</sup>, Nienke De Jonge<sup>1</sup>, Alynda Born<sup>2</sup>, Mylèn Ijpema<sup>2</sup>, Gunou Mahmoud<sup>2</sup> &  
Robin Van Der Meel<sup>2</sup>

<sup>1</sup> Department of Pedagogical and Educational Sciences, Faculty of Behavioural and Social  
Sciences, University of Groningen, the Netherlands

<sup>2</sup> Experienced Expert

\* Corresponding author

Email: [s.van.der.steen@rug.nl](mailto:s.van.der.steen@rug.nl)

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## Abstract

Psychiatric assistance dogs may offer a promising form of support for individuals with severe mental health challenges, yet systematic research remains limited, particularly among civilians, as most existing studies have focused on veterans or other uniformed populations. This article reports findings from three complementary studies examining the effects of psychiatric assistance dogs on the quality of life of adolescents and young adults in the Netherlands (16–30 years) with severe psychosocial problems. In a cross-sectional questionnaire study ( $n = 141$ ), participants who had lived with their dog for more than two years reported significantly higher quality of life than those with shorter partnerships. A six-month longitudinal study ( $n = 9$ ) showed significant increases in quality of life across 12 repeated measurements among participants who had only recently been matched with their dogs. Qualitative interviews ( $n = 13$ ) provided further insight, revealing an initial adjustment period followed by improvements in psychological and social well-being. Thematic analysis highlighted hope (seeing a future again), enhanced social participation and independence, and companionship with the dog as the most prominent benefits mentioned in the interviews. Taken together, the three studies provide converging evidence that psychiatric assistance dogs can meaningfully enhance daily functioning, quality of life, and social connectedness for young civilians with mental health difficulties. Importantly, this research demonstrates measurable and robust benefits, showing that the impact of psychiatric assistance dogs extends beyond stories and into demonstrable improvements in people's lives, provided the dog's welfare is safeguarded.

**Keywords:** Service dogs; Quality of Life; Psychosocial Problems; Civilians; Well-being.

## 47 **Beyond Stories: Evidence-Based Benefits of Psychiatric Assistance Dogs for Youth**

48 Adolescents and young adults with severe psychosocial and psychiatric problems often face  
 49 profound limitations in their daily lives. Conditions such as trauma, anxiety, attachment  
 50 disorders, severe depression, eating disorders, or autism spectrum disorder can make even basic  
 51 activities—like social participation, grocery shopping, or attending school or work—extremely  
 52 difficult or impossible (Rapee et al., 2012). Many are neither employed nor in education, and  
 53 because their disabilities are often invisible, they are frequently misunderstood by both the public  
 54 and institutions, leaving their lives largely confined to their homes (Rahman et al., 2023).

55 Mental health problems typically emerge during adolescence or young adulthood (McGorry &  
 56 Van Os, 2013), and can lead to severe psychosocial impairments (Lynam et al., 2007). Between  
 57 20% and 60% of patients experience “treatment resistance,” with symptoms persisting despite  
 58 standard interventions (Howes et al., 2022). This not only causes substantial personal suffering  
 59 but also dramatically increases healthcare costs, up to ten times higher than for individuals  
 60 without treatment resistance. Comorbid conditions further worsen outcomes and are associated  
 61 with lower quality of life (Forman-Hoffman et al., 2018). For young people who do not  
 62 sufficiently benefit from standard therapies, alternative forms of support are needed.

63 Psychiatric assistance dogs (in the U.S. often called psychiatric service dogs, cf. Foltin & Glenk,  
 64 2023) offer a promising option for this target group. These specially trained dogs can enhance  
 65 independence, facilitate social engagement, and provide emotional regulation, thereby improving  
 66 psychosocial functioning and quality of life (Tedeschi et al., 2010). They can help a person with  
 67 PTSD assess whether a space is safe, reduce acute anxiety through physical contact, or support  
 68 someone with panic disorder, autism or agoraphobia in (re-)entering social situations. Some dogs  
 69 monitor sleep patterns to prevent nightmares, assist in managing dissociative episodes, or  
 70 maintain personal space in crowded environments (Assistance Dogs International, 2024; Lloyd et  
 71 al., 2019; Nieforth et al., 2023; Rodriguez et al., 2020; Tedeschi et al., 2010). Meaningful  
 72 benefits for participation and well-being arise when assistance dogs are carefully trained,  
 73 supported, and matched to the needs of both human and dog, with safeguarding canine welfare as  
 74 a necessary condition (Foltin & Glenk, 2023). Their role can be comparable to guide dogs for the

blind or mobility service dogs, offering essential assistance that benefits both human independence and animal engagement (Gravrok et al., 2020).

The literature on the effects of psychiatric assistance dogs is relatively recent (Leighton et al., 2022), with empirical studies conducted in the United States (Bergen-Cico et al., 2018; Leighton et al., 2024; Nieforth et al., 2023; O’Haire & Rodriguez, 2018; Rodriguez et al., 2020, 2021), Canada (Vincent et al., 2019), the Netherlands (Van Houtert et al., 2022), and Australia (Lloyd et al., 2019; Gravrok et al., 2020). Research in North America and the Netherlands has largely focused on veterans, supported by dedicated programs that provide funding, infrastructure, and, in some cases, access to waitlist control groups. These studies highlight benefits for veterans with PTSD, a population at heightened risk due to occupational trauma (Terhakopian et al., 2008), primarily showing reductions in PTSD symptoms as well as improvements in self-reported well-being. Australian studies have examined broader civilian populations. For example, a survey of 199 individuals with depression, anxiety, or bipolar disorder found that 94% reported reduced anxiety and tension from their assistance dog, along with greater confidence in leaving home and engaging with society (Lloyd et al., 2019). Overall, these findings suggest that psychiatric assistance dogs can provide meaningful support, although civilian research remains limited, partly due to challenges in funding and recruitment.

The fastest-growing group of assistance dogs are those supporting individuals with psychiatric disabilities. Yet most countries lack centralized registration systems, leaving no legal requirement to verify training or accreditation (Foltin & Glenk, 2023). With demand rising, fully trained adult dogs are scarce, and many organizations—both accredited and non-accredited—rely on team training models, in which clients raise and train a puppy under professional supervision (European Guide Dog Federation, 2024). While less costly than fully pre-trained dogs, team training still entails considerable expense.

In Europe, the typical cost of training a psychiatric assistance dog ranges from €10,000 to €30,000. Funding usually falls to the client, though some support may come from foundations, crowdfunding, or legal provisions (Rehacare, 2021). Some countries provide frameworks that can potentially enable reimbursement. In the Netherlands, for example, the Social Support Act (Wmo) allows municipalities to grant support for independent living, potentially including a

psychiatric assistance dog. In practice, however, access varies widely by municipality and caseworker, with denials often based on the perceived lack of civilian-focused research, and funding is usually uncertain and difficult to obtain through this route (Van der Helm, 2025). This highlights the urgent need for systematic evidence beyond veteran populations, particularly among adolescents and young adults.

In summary, adolescents and young adults with severe psychosocial and psychiatric problems face significant challenges in daily life, including social participation, education, and employment. Standard treatments are often insufficient, particularly with comorbidities, leaving quality of life severely reduced (Ezpeleta et al., 2001). Psychiatric assistance dogs may offer unique support by enhancing independence, regulating emotions, and facilitating social engagement for individuals with conditions such as PTSD, anxiety, or agoraphobia (Assistance Dogs International, 2024; Tedeschi et al., 2010; Lloyd et al., 2019). However, access remains inconsistent, limited by scarce civilian-focused research and uneven funding.

To strengthen the evidence base, this article presents three complementary studies examining the impact of psychiatric assistance dogs on the quality of life of adolescents and young adults in the Netherlands. Specifically, we report findings from a large-scale cross-sectional questionnaire, a six-month within-subject longitudinal study, and a qualitative interview study. Together, these studies offer a multifaceted perspective on how psychiatric assistance dogs may contribute to daily functioning and well-being in this under-researched population. Based on prior research showing benefits of psychiatric assistance dogs for psychosocial functioning (Leighton et al., 2024; Lloyd et al., 2019; Nieforth et al., 2023; O’Haire & Rodriguez, 2018; Rodriguez et al., 2020; Van Houtert et al., 2022), we hypothesize that ownership of a psychiatric assistance dog will positively influence quality of life.

## Method

This research consisted of three studies, each addressing the overarching question of how psychiatric assistance dogs affect quality of life, approached through different methodological lenses. The cross-sectional questionnaire provided a broad overview of quality-of-life outcomes in a large sample. The six-month within-subject longitudinal study captured individual changes

over time, offering stronger indications of causality. Finally, the qualitative interview study explored lived experiences in depth, giving context and nuance to the quantitative findings. Ethical approval was obtained from the host university's ethics committee (#PED-2324-S-0001).

## **Participants**

### ***Study 1***

Participants for Study 1 were recruited through social media and online communities for assistance dog owners. Eligibility criteria were: (a) being 16–30 years old, (b) owning a psychiatric assistance dog (either fully trained or still in training) or being in the process of acquiring one, and (c) currently receiving or having previously received mental health support for psychosocial problems. Of the 278 respondents, 154 remained after excluding cases with missing demographic or quality-of-life data. For the analysis of Study 1 (see below), we further excluded respondents who were still in the process of acquiring a dog, resulting in a final sample of 141 participants. Descriptive statistics are presented in Table 1.

### ***Study 2***

Participants for Study 2 were drawn from Study 1 respondents who agreed to participate in follow-up research. Eleven were selected: two in the early stages of acquiring a psychiatric assistance dog and nine who were partnered with their dog for less than six months. All consented to a six-month study, but the two participants awaiting the dogs did not receive them during the study period and were excluded. Demographic information is presented in Table 1.

### ***Study 3***

Participants for Study 3 were drawn from Study 1 respondents who expressed interest in further research and were *not* part of Study 2. Eighteen individuals were initially selected to ensure diversity in age, gender, education, type of training, and duration of partnership with their assistance dog. Thirteen completed interviews; five were unavailable due to scheduling conflicts or non-response (see Table 1). As in the other two studies, all participants had a history of mental health support for severe psychosocial problems. Although diagnoses were not specifically requested, several participants voluntarily reported multiple comorbid conditions, including

autism spectrum disorder, eating disorders, personality-related difficulties, attachment problems, and (complex) PTSD.

## **Procedure**

At the start of each study, participants were informed about the study procedures, including anonymization, voluntary participation, and their right to ask questions or withdraw at any time. This information, initially provided during recruitment, was reiterated at each data collection point, and participants provided written consent for the use of their data at every stage.

### ***Study 1***

This cross-sectional study was conducted using an online questionnaire (Qualtrics, Provo, UT). Control questions verified each inclusion criterion (see above). The survey included items on demographics, assistance dog ownership, quality of life, and experiences across the different stages of acquiring and living with a psychiatric assistance dog.

### ***Study 2***

This within-subjects study was conducted using bimonthly online questionnaires over a six-month period (Qualtrics, Provo, UT). Participants completed a questionnaire at the start and midpoint of each month when receiving a text message on their phones. If not completed on the first day, reminders were sent the following day and again on the fourth day; if still incomplete, the measurement was coded as missing. The questionnaire included items on quality of life, assistance dog ownership, and the cooperation between dog and owner.

### ***Study 3***

Interviews were conducted between January and May 2024, either on-site or online, based on participant preference, and lasted 45–60 minutes on average. Interviews were carried out by the first author and by experienced experts (co-authors of this paper) trained in research skills. On occasion, two master's students also conducted interviews after receiving training and supervision from the authors. Prior to the interview, participants signed a consent form agreeing to audio recording. Each interview was organized into four sections covering different question categories (see Table 3). To ensure ethical sensitivity, participants were not directly asked about

their medical history, psychiatric diagnoses, or reasons for obtaining a psychiatric assistance dog. Any voluntarily disclosed information was analyzed when relevant to the research questions. Interviews were transcribed verbatim using Amberscript or Microsoft Word and manually checked for accuracy.

## Measurements

### *Study 1*

**Quality of Life.** Participants' general quality of life and well-being were measured using an adapted Dutch version of the KIDSCREEN-10 Index (Ravens-Sieberer et al., 2010). This version was suited to our relatively young sample and was integrated into the online questionnaire. Adaptations included changing references from "week" to "month" and modifying items to better fit the young adult sample. An example item is: "[Thinking about the last month], have you felt full of energy?" The scale used response options ranging from 1 = never to 5 = always and demonstrated good internal consistency in this sample (Cronbach's  $\alpha = .85$ ). See Table 2 for the full scale.

**Assistance dog ownership.** Participants' experiences with their assistance dogs were explored through open-ended questions on timing and impact of the dog's arrival, changes in daily life, challenges of ownership, and the personal significance of their dog.

### *Study 2*

**Quality of Life.** Participants' general quality of life and well-being were assessed using the same adjusted Dutch version of the KIDSCREEN-10 Index as in Study 1 (Ravens-Sieberer et al., 2010), with minor adaptations for a two-week reference period (see Table 2). Cronbach's alpha for this sample was  $\alpha = .83$ .

**Assistance dog ownership.** Participants' experiences with their assistance dogs were assessed using open-ended questions focusing on the past two weeks. Questions addressed the current stage of the assistance dog process, progress in training, quality of cooperation between participant and dog, and daily activities. Participants also reported both the activities they had engaged in (e.g., meeting friends, grocery shopping) and those they had wanted to do but were unable to complete. To capture this, they selected from a list of 14 activities, with an additional "other" option to specify activities not included in the list.



### Study 3

The semi-structured interviews were conducted consistently across participants (example questions in Table 3). A codebook (Appendix A) was developed to analyze participants' statements on their quality of life throughout the interview. Initially, three main categories, 'psychological functioning,' 'social functioning,' and 'physical functioning' were drawn from prior research (biopsychosocial model, see Engel, 1977). Two additional categories, 'general functioning' and 'dog-owner relationship' emerged during coding. Subcategories were generated bottom-up by clustering quotes with similar meanings. Cross-validation by two researchers achieved 81.9% interrater agreement on a substantial subset of codes (25%), with all discrepancies resolved through discussion to reach full consensus. The final codebook was approved by three experienced experts.

### Analysis

#### Study 1

In Study 1, the two reverse-scored items of the KIDSCREEN-10 Index (Ravens-Sieberer et al., 2010) were first recoded, and all responses were then averaged to create a single quality-of-life score for each participant. Participants were then divided into two groups based on the duration of their partnership with the assistance dog: 75 with dogs still in training or partnered for less than two years, and 66 with dogs who had completed training and had been together for more than two years. A cutoff of two years was selected, as dogs are generally considered fully mature and have typically completed their training by this age. Assumptions for inferential statistics were checked. Normality was not violated ( $W = 0.98$ ,  $p = .42$  for participants who were with their dog less than 2 years;  $W = 0.99$ ,  $p = .81$  for participants who were with their dog for more than 2 years), and Levene's test indicated homogeneity of variances ( $F(1,139) = 0.48$ ,  $p = .49$ ). No outliers were detected. Group differences in quality of life were analyzed using a  $t$ -test. Open-ended responses were used to supplement and clarify the quantitative findings.

#### Study 2

In Study 2, we first assessed whether the data met the assumptions for longitudinal analysis. Shapiro-Wilk tests indicated that normality was satisfied for all 12 measurement occasions (all  $W$

> 0.8,  $p > .05$ ), and only two isolated outliers were observed, which were deemed non-influential after comparing analyses with and without these cases. The two reverse-scored items of the KIDSCREEN-10 Index (Ravens-Sieberer et al., 2010) were recoded, and for each participant, a mean score across the quality-of-life items was calculated at each measurement point to represent overall quality of life. One participant had missing data at four time points (5, 8, 10, and 11); these were imputed using the participant's average from earlier completed measurements. Longitudinal analyses were then conducted on the full scale and its components using a Friedman test. Open-ended responses were incorporated to provide additional context and clarify the quantitative findings.

### ***Study 3***

Qualitative coding followed the pre-established categories described in the measurement section (Engel, 1977), with two additional categories: 'dog-owner relationship' and 'general functioning' to capture unique aspects of assistance dog ownership. Subcategories were derived inductively from participants' statements. Each coded unit was assigned a positive, negative, or neutral valence to allow comparison across life domains. Codes were analyzed within their main categories (see Figure 1) and integrated to provide a comprehensive view of participants' experiences.

## **Results**

### **Study 1: Questionnaire**

#### ***Quality of Life***

The mean quality of life of participants who were together with their assistance dog for less than two years ( $n = 75$ ) was 2.96 ( $SD = 0.60$ ), whereas the mean quality of life for the group that had been together with their assistance dog for over two years ( $n = 66$ ) was 3.29 ( $SD = 0.56$ ). A  $t$ -test showed that this difference was statistically significant,  $t(139) = -3.39$ ;  $p = .001$ ; 95% CI (-0.53, -0.14). The effect size, as measured by Cohen's  $d$ , was 0.57, indicating a moderate effect.

#### ***Open-ended Responses***

When asked how long it took to notice changes after their assistance dog's arrival, one participant summarized: "*Pretty much immediately, but the big changes occurred in the long*

run” (Participant #33). Many noted that the most significant changes occurred as their dog reached adulthood. Reflections on the dog’s impact often expressed gratitude, with confidence in daily life emerging as a central theme. Participants commonly reported needing less care or medication, or experiencing greater benefit from ongoing treatment. A few, however, mentioned challenges, including the responsibility of caring for their dog and negative interactions in public.

## **Study 2: Within-Subjects Study**

### ***Quality of Life***

Figure 2 shows the mean quality of life across all participants over 12 measurement points. Scores rose from 2.9 at baseline to 3.1 at measurement 2, dipped slightly at measurements 3 and 4, and then increased gradually, stabilizing at measurements 10–12 around 3.3. A Friedman test indicated that this overall increase was statistically significant,  $\chi^2(11) = 21.64$ ,  $p = .03$ , with Kendall’s  $W = .22$ , indicating a small to moderate effect size.

### ***Open-ended Responses***

At each measurement point, participants were asked to report on their activities over the past two weeks, such as meeting friends or grocery shopping. The average number of activities increased from 5–6 at the first measurement to about 9 at the final measurement. In parallel, unmet activity needs decreased: while five participants at the first measurement reported being unable to do a desired activity (vs. four who did not), by the final measurement only two participants reported such limitations (vs. seven who did not).

## **Interviews**

### ***Psychological Functioning***

**Self-Image.** Several participants described changes in their self-image due to interactions with their dog. These ranged from increased self-awareness of impatience (through the dog’s mirroring behavior), to greater self-worth from engaging in meaningful daily activities, and stronger awareness of personal boundaries. Many also reported becoming more attuned to early signs of panic or overstimulation, enabling them to manage or prevent panic attacks. All of these changes were experienced positively.

**Hope.** Hope was another recurring theme. Participants described regaining a sense of future—envisioning a more active and independent life. These feelings often began when considering an assistance dog but became stronger once the dog was present. For some, the (prospect of the) dog even became a lifeline during severe suicidality, as participant 9 put it: *“This or euthanasia.”*

**Stress.** Most participants reported reduced stress and shorter stress episodes. Dogs performed tasks such as deep pressure therapy (using their body weight to calm the owner) which participants said helped counter dissociation, flashbacks, and overstimulation. Participant 7 explained: *“Yeah, just the tension and stress does not rise as high. And if it does, it mellows out quicker which just makes it less tiring.”* Some participants, however, noted new stressors, such as the perceived high expectations of living with a psychiatric assistance dog.

**General.** More general comments on psychological functioning often centered on a greater sense of stability. Some participants were able to reduce or stop medication use, while others mentioned being able to continue their gender transition journey.

### ***Social Functioning***

**Social Participation.** The most common theme across interviews was social participation. Participants enthusiastically described being able to leave the house, use public transport, return to school or work, and live more independently. As Participant #1 put it: *“We go to grocery stores, museums, parks, wow, amazing progress.”* These changes were both practical and financially beneficial, reducing reliance on disability benefits and contributing to improved mental health. However, some reported that limited access to certain public spaces (e.g., unjustified denial) or housing occasionally restricted their independence.

**Grounding.** Despite the stress often experienced in public spaces, participants described feeling safer and calmer when accompanied by their assistance dog. Dogs were frequently trained to create space between their owner and others or to redirect attention back to the dog, which participants reported as grounding.

**Relations to Other People.** Participants reported that owning an assistance dog greatly influenced how they were perceived by others. In public, they often faced negative reactions such as glares, invasive comments, or online harassment. In contrast, familiar people responded more positively, with many participants noting renewed friendships or improved family relationships. Participant 9 explained that their partner now felt more like an equal: *“It’s not the*

case anymore that my boyfriend is constantly tending to me like a caregiver; he can let loose a bit more now.”

### **Physical Functioning**

**Daily Routine.** Owning a dog in general may help to structure daily life. Multiple participants discussed the increased ease of getting up in the morning and the ability to better take care of themselves alongside the care for their dog. Participant 3 shared that: *“It was a lot easier to get out of bed, for her [the dog].”*

**Sleep.** Participants sometimes experienced sleep-related problems such as insomnia, nightmares, or a general sense of restlessness. Their assistance dogs were trained to recognize these experiences and intervene, which was reported as positive and helpful.

**Getting Outside.** Establishing a daily routine often came with an increased amount of time spent outside of the house, which participants experienced as providing a temporary boost to their well-being.

**Physical Activity.** A couple of participants discussed a change in their ability to engage in sports, and specifically the capability of doing this in public due to the company of their assistance dog.

### **Dog-owner Relationship**

**Connection.** The second most common theme was the bond between dog and owner, described as companionship, attunement, and trust. Participant #13 captured this connection: *“Someone that is just constantly with you, looking out for you, thinking along with you, and helpful when you need it.”* While this interdependence was largely experienced positively, some participants expressed concern about setbacks if their dog became ill or unable to perform tasks.

**Fun.** Participants also discussed ways they ensured sufficient relaxation and enjoyable moments for both the dog and themselves. They mentioned activities such as agility courses, as well as simply spending time and relaxing together.

**Stress.** Not all aspects of assistance dog ownership were considered positive. Participants often reported stress during financing and training, challenges with dog temperament or puberty, and sometimes anticipatory grief. Participant 2 commented on temperament issues: *“We are both quite sensitive, which does work against us at times.”*

### General Functioning

**Short-term.** In the early stages of acquiring and adjusting to their assistance dog and the training, most participants experienced some struggle. For some, the changes were so significant that adaptation was challenging. Participant #2 reflected: *“The first year was really quite intense.”*

**Long-term.** Long-term reflections on general functioning painted a positive picture. When asked about their current situation, many participants, well into the process, reported clear benefits. They compared their present lives with the past, emphasizing how much their dog had helped. Participant #13 stated: *“That it makes a change in the whole feasibility of life, which is becoming bigger and bigger for me.”*

### Discussion

In this study, we examined adolescents and young adults in the Netherlands (16–30 years) with severe, often comorbid psychosocial problems. We assessed the impact of psychiatric assistance dogs using three complementary approaches: a cross-sectional questionnaire ( $n = 141$ ), a six-month longitudinal study ( $n = 9$ ), and qualitative interviews ( $n = 13$ ). Across methods, results consistently indicate that psychiatric assistance dogs enhance daily functioning and well-being. In the cross-sectional survey, participants who had been with their dog for more than two years reported significantly higher quality of life than those with less than two years of partnership. In the longitudinal study, which followed participants who had just been with their dog for a short period of time (less than six months), quality of life increased significantly over a six-month period with 12 measurements. Although earlier studies in specifically veterans with PTSD reported mixed effects on global quality of life (Leighton et al., 2022), our findings, along with recent research in other populations (Leighton et al., 2024; Lloyd et al., 2019; Nieforth et al., 2023; Rodriguez et al., 2020; Van Houtert et al., 2022; Vincent et al., 2019), suggest that psychiatric assistance dogs can meaningfully improve quality of life, with benefits apparent both immediately and over the longer term.

Qualitative interviews supported and enriched these findings. Participants described an initial adjustment period, sometimes accompanied by managing high expectations, followed by improvements, mostly in psychological and social well-being. The most prominent themes were

hope (a sense of a future to look forward to), increased social participation and independence, and companionship, attunement, and trust with their dog. Together, the results from all three studies provide converging evidence that psychiatric assistance dogs can meaningfully enhance daily functioning and overall quality of life in this under-researched population.

The latter point is particularly important, as funding for psychiatric assistance dogs is still frequently denied on the grounds that most available research has been conducted with veterans or other uniformed personnel (Van der Helm, 2025). According to participants in our study, this perceived lack of civilian-focused evidence has resulted in funding denials from municipal caseworkers when participants applied for financial support for their psychiatric assistance dogs (Van der Steen et al., 2024). While it is true that veterans are at elevated risk of mental health problems such as PTSD due to occupational exposure (Terhakopian et al., 2008), PTSD is not unique to military contexts. Both the ICD-11 and DSM-5 manuals identify combat as only one of many potential traumatic events, and approximately 7% of the general population with trauma exposure develop PTSD (De Vries & Olff, 2009). The fact that we observe similar outcomes among civilian participants strengthens the argument that access to, and funding for, psychiatric assistance dogs should not be contingent upon occupational history.

Another noteworthy finding is that the companionship, and thus the positive impact of the partnership on quality of life and participation, appears to develop gradually rather than immediately. This pattern emerged consistently across both the questionnaire data and the interviews. In the short term, our longitudinal study found a significant but modest improvement in quality of life immediately after the partnership began. Over the longer term, however, the larger questionnaire study showed that participants partnered with adult dogs (two years or older) who had completed training reported substantially higher quality of life than those still in training or partnered for a shorter period. These results align with findings from research on Canadian veterans with PTSD, where the beneficial effects of living with a psychiatric assistance dog on well-being were shown to increase over an 18-month period (Vincent et al., 2019).

This gradual pattern may also characterize our participants, most of whom engaged in team training—the predominant approach to training psychiatric assistance dogs in the Netherlands—and may partly reflect a mismatch between initial expectations (“once I am with the dog, I will

feel different”) and the realities of the early stages, such as the challenges of puppyhood and adolescence. Over time, participants appeared to reach a more stable phase in which they and their dogs worked together more effectively. Beyond these developmental factors, research on animal-assisted services highlights attunement or synchrony as a key mechanism of benefit (Griffioen et al., 2020). It is therefore plausible that, regardless of the dog’s developmental stage, time is needed for the dyad to establish effective coregulation, a process reflected in the short-term struggles reported by some participants.

#### **Limitations and future directions**

Participants were recruited through social media and online communities for assistance dog owners, yielding a heterogeneous sample in age, partnership duration, training methods, and assistance dog organizations. Participation was voluntary, so the sample should be considered a convenience sample. In Study 1, we disclosed the topics addressed. However, participants were not told that we would examine quality of life in relation to partnership duration, making response bias unlikely. In Study 2, participants were explicitly informed that we were interested in changes in quality of life and participation over time. The high number of assessments (12), combined with the online survey format in which previous responses were not visible, suggests that response bias likely did not meaningfully affect the findings, although it cannot be ruled out. Selection bias requires more consideration for Study 3 interviews. Of the 18 individuals initially contacted, 5 were not interviewed due to scheduling conflicts or unsuccessful follow-up. Reasons for non-participation remain unclear, and some may have been experiencing psychological distress, which could have influenced the findings had they been included.

The three studies presented here indicate that psychiatric assistance dogs are associated with positive effects on quality of life, with study designs chosen as appropriate alternatives given the challenges of establishing traditional control groups. While studies with control groups, ideally active controls receiving alternative interventions, as suggested in animal-assisted services research (Van der Steen et al., 2025), would add rigor, randomized controlled trials are ethically and practically challenging, as randomly assigning individuals to receive or not receive a dog is neither feasible nor acceptable. Nevertheless, the high demand for assistance dogs and the staged nature of team training make multiple baseline designs a promising alternative (Hawkins et al.,



2007), allowing participants to act as their own controls and reliably detect intervention-related changes. These designs can be strengthened by coupling them with ecological momentary assessment (Shiffman et al., 2008), where participants report on emotional states and activities at varying times, as in the study of Leighton et al. (2024) on veterans with PTSD. Future research could further strengthen the evidence base by examining the perspectives of mental health professionals and caseworkers involved in funding decisions for psychiatric assistance dogs.

## **Conclusion**

Overall, the quantitative and qualitative findings from three complementary studies provide converging evidence that psychiatric assistance dogs can substantially enhance quality of life, participation, and social connectedness for young people with severe psychosocial problems. These benefits appear to emerge gradually as companionship develops, with results pointing to sustained improvements over time. Importantly, the present studies demonstrate that such outcomes are both observable and measurable, advancing the evidence base beyond anecdotal accounts and single-case reports. Taken together, the findings highlight psychiatric assistance dogs as a promising and credible form of support, with the potential to complement existing treatments and to fill critical gaps in care for youth whose needs are not fully met by conventional approaches.

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638 **Table 1:** *Final participant characteristics for the three studies*  
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	Statistic	Category	Number of participants, or amount of time
<b>Study 1 Questionnaire</b>	Age (years)	16 - 18	18
		19 - 21	32
		22 - 26	66
		27 - 30	25
	Self-identified gender	Male	7
		Woman	126
		Non-binary	6
		Other	2
	Status of dog training process	In training, lives with client	75
		Done training, lives with client	66
<b>Study 2 Within-subjects</b>	Time spent living together (in months)	Clients with dog in training	12
		Clients with dogs completed training	45
	Age (years)	16 - 18	1
		19 - 21	1
		22 - 26	4
		27 - 30	3
	Self-identified gender	Man	1
		Woman	8
	Status of dog acquisition and training process <i>at first measurement</i>	In training, lives with client < 6 months	7
		In training, does not live with client yet	1
		Completed training, lives with client	1
	Type of training	Team training	7
		Trained by organization	2

	Time spent in training or together (in months)	Dog in training, lives with client	3.5 ( <i>training</i> )
		Dog in training, does not live with client	18 ( <i>training</i> )
		Dog finished training and lives with client	2 ( <i>together</i> )
<b>Study 3 Interviews</b>	Age (years)	16 - 18	1
		19 - 21	3
		22 - 26	7
		27 - 30	2
	Self-identified gender	Man	3
		Woman	10
	Status of dog training process	Dog in training, lives with client	7
		Dog completed training, lives with client	6
	Type of training	Team training	11
		Trained by organization	1
		Both	1
	Time living together (in months)	Dog in training	11
		Dog finished training	47

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**Table 2: Quality of Life Questions asked in Study 1 and Study 2.**

Question	Difference with original Dutch KIDSCREEN
Have you felt fit and healthy?	N/A
Have you felt full of energy?	N/A
Have you felt sad?	N/A
Have you had enough time for yourself?	N/A
Have you felt lonely?	N/A
Have you been able to do the things you wanted in your free time?	N/A
Have you had fun with others?	Original item used 'friends' instead of 'others'.
Have you been able to concentrate well (pay attention)?	Original item used only 'pay attention'.
Have you participated in outside-the-home activities like studying, working, attending day programs, or visiting shops?	Original school-related item replaced to suit entire sample.

**Note.** In Study 1, participants reported on the past month, while in Study 2 they reported on the past two weeks. The original KIDSCREEN scale also included the item “Have your parents treated you fairly?”, which was omitted because it seemed less suitable for our older target group.

**Table 3: Interview Sections and Example Questions**

Question category	Example questions
Introductory	<ul style="list-style-type: none"> <li>- Could you tell us a bit about yourself and your (future) assistance dog?</li> <li>- What made you choose an assistance dog rather than a regular pet dog?</li> </ul>
Training	<ul style="list-style-type: none"> <li>- You chose a pre-trained assistance dog / to train your assistance dog in team training. Could you tell us why you made this choice?</li> <li>- Your assistance dog is / will be trained by organization [name]. Why did you choose this organization?</li> </ul>
Funding	<ul style="list-style-type: none"> <li>- Could you describe how the funding process proceeded / is proceeding? What steps did you take?</li> <li>- Could you describe how the funding process feels / felt for you?</li> </ul>
Living and working together	<ul style="list-style-type: none"> <li>- How have you been since your assistance dog became part of your life?</li> <li>- How would you describe the bond between you and your dog?</li> </ul>

656 **Figure 1:** Visual representation of codes and subcodes.

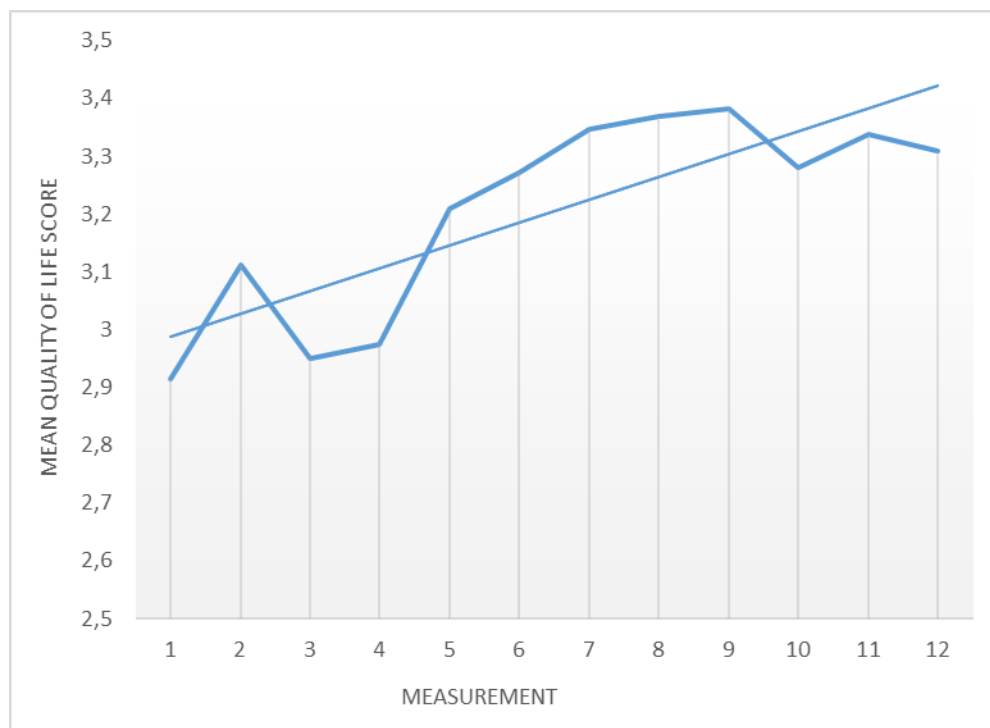
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**Figure 2:** *Group Mean Quality of Life per time point.*



Note. KIDSCREEN quality-of-life scores can range from 1 (lowest) to 5 (highest). In our sample, mean scores increased from 2.9 at the first measurement to 3.3 at the twelfth measurement.

## Appendix A

### Codebook

#### Decision rules regarding ambiguous quotes:

- When a quote is on the edge between two main categories, the question that the quote was a response to is leading in the coding decision (example: is it a very broad and general question, or does the question inquire directly into the person's bond with their assistance dog?)
- If a quote is still ambiguous after the above consideration, the 'end result' or the ultimately resulting life change after acquiring the assistance dog is what gets coded (*example: person 1 reflects upon themselves internally as a result of the dog's mirroring; person 12 merely mentions their external response towards their dog*).

Intvw. nr.	Quote	Main category	Subcategory	Pos/ neg change
1	"After some time of him barking at random people, I noticed that it isn't him, but I think it is actually me being the one that has an issue"	Psychological functioning	Self-image (self-awareness)	+
12	"Nou ten minste dan zit ik te veel in mijn hoofd en dan gaat hij natuurlijk spiegelen, waardoor ik soms wel geïrriteerd naar hem reageer" // <i>"Well at least then I get in my head too much and then obviously he mirrors me, which sometimes makes me respond with annoyance"</i>	Dog-owner relationship	Connection (mirroring)	+ / -

Main categories (preferably 1, maximum 2 per quote):

- **Psychological functioning**
  - Quotes that involve discussion about the internal experience of the person - cognitive or emotional - in which they refer to a specific emotion, state of mind, or use the words 'emotions/ emotional'

- *Exception*: emotional or other psychological experiences that are in direct relation to the world around the person and have a more external link, these are part of ‘social functioning’
- **Social functioning**
  - Quotes in which an interaction between the person and the world around them are discussed - direct and outward interactions, but also more indirect and internal experiences that have a direct relation to the outside world
  - Quotes discussing a form of participation in society, in which a form of active citizenship can be seen
- **Physical functioning**
  - Quotes that involve terms that relate directly to physical health and physical activity, such as sleep, daily routines, staying active, and getting outside more
  - *Clarification*: ‘getting outside more’ is only applicable when the outcome is simply getting some fresh air; when the person gets outside with the goal or result of participating in society, this is coded as ‘social functioning’
- **Dog-owner relationship**
  - Quotes that predominantly discuss the interactions between the assistance dog and its owner, be it more generally or more specific with (an) example(s)
  - Quotes that might involve some discussion relating to other main categories, but would be done more justice in the ‘dog-owner relationship’ category for the reason that it highlights the unique experiences of this type of assistance
- **General functioning**
  - Quotes that are relevant to the quality of life of the assistance dog owners in the past or present, but that are too broad to fit into any of the above categories or are otherwise not relevant to the categories and are ‘leftover’
  - *Exception*: quotes that specifically discuss an expected difference in quality of life in the future - these are a part of ‘psychological functioning → ‘hope’

Subcategories psychological functioning:

- **Self-image**

- 723           - Quotes in which the person discusses changes in how they view themselves  
 724            compared to the time before they had their assistance dog  
 725           - Examples: self-worth, self-confidence, self-awareness  
 726       - **Hope**  
 727           - Quotes discussing feelings of hope, or finding a more comfortable and nicer way  
 728            to live life compared to how things were before the assistance dog came into the  
 729            person's life  
 730           - Examples: general sense of hope, vision of the future, finding a will to live  
 731       - **Stress**  
 732           - Quotes referring to any change in emotional/ mental stress that is not directly  
 733            related to the handling of the assistance dog (this would be part of 'dog-owner  
 734            relationship')  
 735           - Examples: amount of general stress moments, duration of general stress moments,  
 736            dissociation or flashbacks, overstimulation, decision paralysis, pressure to be  
 737            'better'  
 738       - **General**  
 739           - Quotes referring to an aspect of psychological functioning that is not a part of the  
 740            above subcategories  
 741           - Examples: experiences of joy, stopped psychological treatment / taking  
 742            medication, stability  
 743  
 744   Subcategories social functioning  
 745       - **Social participation**  
 746           - Quotes pertaining to a change in independence or mobility after the assistance dog  
 747            came into the person's life  
 748           - Examples: going to school/ work, living situation, general independence  
 749       - **Grounding**  
 750           - Quotes in which the person talks about finding a sense of rest, calmth, or inner  
 751            peace (physical and/ or psychological) in environments with other people as a  
 752            result of being accompanied by their assistance dog  
 753           - Examples: general, sense of safety, 'shield' created by dog

- **Relations to other people**

- Quotes discussing a change in the amount or the quality of interactions that the person has in their interactions with other people since they acquired their assistance dog

- Examples: with familiar people, with unfamiliar people

Subcategories physical functioning:

- **Daily routine**

- Quotes applying to the creating or maintaining of a daily routine as a result of owning and caring for the assistance dog
- Quotes in which changes to the start of one's day where the person has to get up out of bed due to owning and caring for an assistance dog are discussed

- **Sleep**

- Quotes relating to the changes in the person's rest (at night) are discussed, which may have to do with general sleeping comfort, a sense of safety, or dog assistance during & after nightmares
- *Clarification*: despite the fact that one might reason that 'nightmares' are a part of psychological functioning, we choose to see it as a part of 'getting a good night's sleep' in that bad sleep quality affects one physically

- **Physical activity**

- Quotes that discuss a change in the amount of physical activity that the person engages in as a result of owning an assistance dog

- **Getting outside**

- Quotes referring to getting out of the house more often or 'getting some fresh air', with the focus on simply being outdoors
- *Exception*: quotes that involve going outside, but that put the focus on the physical activity/ sport elements of this (physical functioning → physical activity), or that put the focus on active participation in society (social functioning)

Subcategories dog-owner relationship:

- 785       -   **Connection**
- 786               -   Quotes in which the bond that the person has with their assistance dog is the
- 787                       central theme, for example the ideas of ‘having a buddy’, ‘being in tune with one
- 788                       another’, interdependency, mirroring as a task, or the sense of trust
- 789       -   **Fun**
- 790               -   Quotes specifically referring to the fun and joyful moments that the person has
- 791                       with their assistance dog, be it during or outside of the dog’s working hours
- 792       -   **Stress**
- 793               -   Quotes in which a change in stress levels in relation to the assistance dog is
- 794                       expressed; for example in training/ financing, dog temperament, the changing
- 795                       nature of human-animal interactions, or (anticipatory) grief
- 796
- 797   Subcategories general functioning:
- 798       -   **Short-term**
- 799               -   Quotes that apply to the training period of the assistance dog
- 800               -   Quotes that apply to the period after the acquisition of the assistance dog, in
- 801                       which the person’s life is changing actively and considerably
- 802       -   **Long-term**
- 803               -   Quotes that apply to life with the assistance dog after the person has gotten used
- 804                       to this way of life
- 805
- 806   Positive/ negative change evaluation:
- 807       -   +
- 808               -   Quotes in which a positive change in the person’s life as a result of the assistance
- 809                       dog is described
- 810       -   -
- 811               -   Quotes in which a negative change in the person’s life as a result of the assistance
- 812                       dog is described
- 813               -   Quotes in which the heavy dependence on the assistance dog is emphasized in a
- 814                       way that conveys the negative side of this interdependency
- 815       -   + / -



- 816 - Quotes discussing an influence of the assistance dog on the person's life that is  
817 neither positive nor negative per se, but rather more neutral
- 818 - Quotes that involve both a positive and negative influence of the assistance dog  
819 on the person's life, in which these influences have little to no meaning if they  
820 were separated into two quotes