

## Psychosocial Impact, User Satisfaction, and Caregiver Burden in Mobility Assistive Device Users: A Cross-Sectional Study

Christy Thomas George<sup>1</sup>, Dr. Sarasvathy. V<sup>2</sup>

<sup>1</sup> Research Scholar, Department of Resource Management, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu –641043.

Email: christythomasgeorge94@gmail.com; ORCID: 0000-0001-5466-9509

<sup>2</sup> Assistant Professor (S.S), Department of Resource Management, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu-641043

Corresponding Author: Christy Thomas George, Research Scholar, Department of Resource Management, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu-641043;

Email: christythomasgeorge94@gmail.com, ORCID: 0000-0001-5466-9509

### Abstract

**Background:** Mobility assistive devices are essential interventions for individuals with mobility limitations. However, high abandonment rates suggest that user satisfaction and psychosocial factors significantly influence device utilization. Understanding these relationships can improve service delivery and patient outcomes.

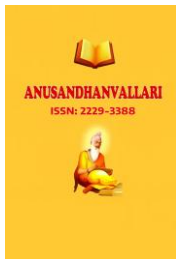
**Objective:** This cross-sectional study examined the psychosocial impact, user satisfaction, and caregiver burden in mobility assistive device users, and explored associations between these variables and device utilization patterns.

**Methods:** A cross-sectional survey was conducted with 287 mobility assistive device users (walkers, canes, crutches, wheelchairs) and their primary caregivers. The Psychosocial Impact of Assistive Devices Scale (PIADS), Quebec User Evaluation of Satisfaction with Assistive Technology 2.0 (QUEST 2.0), and Caregiver Burden Scale were administered. Descriptive statistics, correlation analyses, and multivariate regression were performed.

**Results:** Device users (mean age  $68.2 \pm 12.3$  years) reported positive overall psychosocial impact (PIADS total mean  $31.2 \pm 28.6$ ), with competence dimension most positively affected (mean  $12.8 \pm 9.4$ ). Overall satisfaction was high (QUEST 2.0 mean  $4.1 \pm 0.8/5$ ), though 23.7% reported dissatisfaction. Caregiver burden was significantly elevated (Caregiver Burden Scale mean  $42.3 \pm 15.6$ ), correlating negatively with user psychosocial outcomes ( $r = -0.34$ ,  $p < 0.001$ ). Users receiving structured training and follow-up demonstrated significantly higher satisfaction scores and lower device abandonment intentions. Training adequacy emerged as the strongest predictor of positive psychosocial outcomes ( $\beta = 0.42$ ,  $p < 0.001$ ).

**Conclusions:** Psychosocial factors and user satisfaction significantly influence mobility device utilization. Comprehensive training, follow-up services, and attention to device characteristics are essential for optimizing outcomes. Caregiver support systems warrant concurrent intervention.

**Keywords:** mobility assistive devices, psychosocial impact, user satisfaction, caregiver burden, device abandonment, PIADS, cross-sectional study



## Introduction

Mobility assistive devices including wheelchairs, walkers, canes, and crutches represent essential health interventions enabling individuals with mobility limitations to maintain independence, engage in social activities, and reduce fall risk. The global assistive technology market has expanded significantly, reflecting increasing recognition of these devices as fundamental healthcare products (Senjam et al., 2025). However, substantial gaps persist between device prescription and actual utilization, with abandonment rates reported between 23-35% within the first year of provision (Giesbrecht et al., 2024).

Traditional assessment and prescription models emphasize biomechanical and functional outcomes, incorporating standardized physical performance measures and clinical judgment regarding device appropriateness. While functional outcomes remain important, emerging evidence suggests that psychosocial factors, user satisfaction, and caregiver burden significantly influence sustained device use and real-world utilization patterns (Atigossou et al., 2024; Rushton et al., 2023). Despite this evidence, systematic examination of relationships between psychosocial impact, user satisfaction, and caregiver burden in mobility device users remains limited in the literature.

The Psychosocial Impact of Assistive Devices Scale (PIADS) has emerged as a validated instrument for assessing three key psychosocial dimensions: competence (perceived functional capacity and independence), adaptability (motivation for risk-taking and participation), and self-esteem (emotional well-being and self-confidence) (Day et al., 2021; Jutai et al., 2018). User satisfaction with assistive devices encompasses multiple dimensions beyond functional efficacy, including device comfort, durability, aesthetic appeal, ease of use, and satisfaction with service provision including training and maintenance (Senjam et al., 2025).

Caregiver burden associated with assistive device users has received limited attention in the literature, despite significant implications for caregiver health outcomes and device utilization patterns. Caregivers often experience physical demands from assisting device-dependent individuals, emotional stress regarding user safety, and role strain balancing caregiving with other responsibilities (Choi et al., 2024).

This cross-sectional study aimed to examine associations between psychosocial impact, user satisfaction, caregiver burden, and device utilization patterns in mobility assistive device users. Specific objectives were: (1) to characterize the psychosocial impact of mobility assistive devices using the PIADS; (2) to assess user satisfaction dimensions; (3) to measure caregiver burden; (4) to identify relationships between these variables; and (5) to determine factors predicting positive user outcomes.

## Methods

### Study Design and Participants

This cross-sectional study recruited mobility assistive device users from outpatient rehabilitation clinics, mobility equipment suppliers, and assistive technology centers between January and September 2024. Inclusion criteria were age  $\geq 18$  years, current use of mobility assistive devices (walkers, canes, crutches, manual or power wheelchairs) for  $\geq 3$  months, and ability to provide informed consent. Exclusion criteria included acute illness, severe cognitive impairment, and non-English language capacity. Primary caregivers were invited to complete caregiver-specific instruments.

A sample size of 287 participants was recruited based on power calculations for detecting moderate effect sizes ( $r = 0.25$ ,  $\alpha = 0.05$ ,  $\beta = 0.20$ ) requiring minimum sample of 184. The final sample was stratified by device type.

## Data Collection and Outcome Measures

Psychosocial Impact of Assistive Devices Scale (PIADS): The 26-item PIADS assessed three subscales: Competence (12 items, range -36 to +36), Adaptability (6 items, range -18 to +18), and Self-esteem (8 items, range -24 to +24), yielding total scores from -78 to +78. Cronbach's  $\alpha = 0.91$  for total scale in this sample.

Quebec User Evaluation of Satisfaction with Assistive Technology 2.0 (QUEST 2.0): This 12-item instrument measured device attributes and service satisfaction on 5-point scales (1 = not satisfied to 5 = very satisfied). Cronbach's  $\alpha = 0.85$  in this sample.

Caregiver Burden Scale: The 22-item scale assessed emotional, social, time demand, and physical burden on 5-point Likert scales. Total scores ranged from 22-110. Cronbach's  $\alpha = 0.87$  in this sample.

Additional variables: Demographic data, device utilization patterns, training adequacy (5-point scales), and abandonment intentions were collected.

## Statistical Analysis

Descriptive statistics characterized the sample. Pearson correlation coefficients examined associations between PIADS, QUEST 2.0, and Caregiver Burden scores. Multivariate linear regression identified predictors of user satisfaction and psychosocial outcomes. ANOVA compared outcomes across device types. Chi-square tests examined categorical associations. All analyses used SPSS version 28.0 (IBM Corp., Armonk, NY). Statistical significance was set at  $p < 0.05$  (two-tailed).

## Ethical Considerations

Ethical approval was granted by the Institutional Human Ethics Committee. Informed consent was obtained from all participants following comprehensive briefing on study objectives and procedures. Participation remained voluntary with guaranteed confidentiality and anonymity. Publication consent was separately secured for case study components

## Results

### Sample Characteristics

Table 1 presents demographic and clinical characteristics. Two hundred eighty-seven device users participated (54.4% female, mean age  $68.2 \pm 12.3$  years). Primary diagnoses included stroke (28.2%), arthritis (21.3%), Parkinson's disease (15.7%), spinal cord injury (12.5%), and other conditions (22.3%). Device distribution was: walkers (38.7%), wheelchairs (27.5%), canes (19.9%), and crutches (13.9%). Mean device use duration was  $4.2 \pm 4.8$  years.

One hundred sixty-eight caregivers (58.5%) completed instruments. Caregivers were predominantly spouses (61.3%) or adult children (28.6%), mean age  $64.1 \pm 14.2$  years; 71.4% were female. Mean caregiving duration was  $3.1 \pm 3.4$  years; 51.2% provided daily care.

### Psychosocial Impact (PIADS)

Table 2 presents PIADS outcomes. Device users demonstrated positive overall PIADS scores (mean total  $31.2 \pm 28.6$ , range -42 to +76). Competence dimension was most positively affected (mean  $12.8 \pm 9.4$ ), followed by Adaptability (mean  $10.2 \pm 11.3$ ) and Self-esteem (mean  $8.2 \pm 8.9$ ). Forty-six percent ( $n=132$ ) reported strongly positive impact (PIADS >40), 35.2% ( $n=101$ ) reported moderate positive (0-40), and 18.8% ( $n=54$ ) reported negative psychosocial impact (PIADS <0).

PIADS outcomes varied significantly by device type ( $F(3,283)=4.32$ ,  $p=0.006$ ). Wheelchair users demonstrated highest total scores (mean  $38.1 \pm 26.4$ ), while crutch users reported lowest (mean  $24.3 \pm 31.2$ ). Spinal cord injury users showed highest competence scores (mean  $16.2 \pm 8.1$ ), while Parkinson's disease users reported lowest self-esteem (mean  $4.3 \pm 9.8$ ).

### User Satisfaction (QUEST 2.0)

Table 3 presents satisfaction outcomes. Overall user satisfaction was high (mean total  $4.1 \pm 0.8/5$ ). Device attributes scored highest (mean  $4.2 \pm 0.9$ ), particularly ease of use (mean  $4.3 \pm 0.8$ ) and effectiveness (mean  $4.2 \pm 0.9$ ). Service satisfaction was lower (mean  $3.8 \pm 1.2$ ), particularly maintenance (mean  $3.4 \pm 1.4$ ) and follow-up services (mean  $3.3 \pm 1.5$ ).

However, 23.7% ( $n=68$ ) reported dissatisfaction (QUEST total <4.0). Among dissatisfied users, primary concerns were: pain/discomfort (56.8%), poor fitting (22.9%), inadequate durability (12.2%), inadequate maintenance (6.9%), and poor aesthetics (4.4%). Notably, 76.5% of dissatisfied users reported inadequate or no training.

Satisfaction differed significantly by device type ( $F(3,283)=3.87$ ,  $p=0.010$ ). Wheelchair users reported highest satisfaction (mean  $4.3 \pm 0.7$ ), while crutch users reported lowest (mean  $3.7 \pm 0.9$ ). Device duration correlated positively with satisfaction ( $r=0.26$ ,  $p=0.001$ ).

### Caregiver Burden

Table 4 presents caregiver burden data. Mean Caregiver Burden Scale score was  $42.3 \pm 15.6$  (range 22-95). Emotional burden (mean  $14.2 \pm 6.3$ ) was most prevalent, followed by time demand (mean  $11.8 \pm 4.9$ ), social burden (mean  $10.3 \pm 5.1$ ), and physical burden (mean  $6.0 \pm 3.8$ ). Twenty-three percent ( $n=39$ ) reported severe burden (scale >55).

Caregiver burden correlated negatively with user PIADS scores ( $r=-0.34$ ,  $p<0.001$ ) and user satisfaction ( $r=-0.28$ ,  $p=0.002$ ). Caregivers of wheelchair users reported significantly higher burden (mean  $46.1 \pm 14.8$ ) compared to other devices (mean  $39.4 \pm 15.1$ ;  $t(166)=2.48$ ,  $p=0.014$ ). Full-time caregivers ( $n=86$ ) reported significantly higher burden (mean  $48.6 \pm 14.2$ ) than part-time caregivers ( $n=82$ , mean  $36.0 \pm 14.9$ ;  $t(166)=5.14$ ,  $p<0.001$ ).

### Device Training and Support Services

Table 5 presents training and support data. Seventy-four percent ( $n=212$ ) received structured training (mean sessions  $2.3 \pm 1.8$ ). Only 39.8% received written instructions, and 21.1% received follow-up training. Training adequacy averaged  $3.6 \pm 1.2$  on 5-point scales.

Users receiving structured training demonstrated significantly higher PIADS scores (mean  $37.2 \pm 26.1$ ) compared to untrained users (mean  $18.4 \pm 28.3$ ;  $t(285)=4.82$ ,  $p<0.001$ ). Follow-up services were reported by 41.1% ( $n=118$ ), typically limited to one post-delivery contact (mean interval  $6.2 \pm 4.1$  weeks). Users with follow-up demonstrated lower abandonment intentions (13.6%) compared to without (31.4%;  $\chi^2(1)=12.34$ ,  $p<0.001$ ).

### Device Utilization and Abandonment Intentions

Table 6 presents utilization patterns. Daily device use averaged  $6.8 \pm 5.3$  hours. Sixty-eight percent reported consistent daily use, 21.2% inconsistent use, and 10.8% minimal use. Abandonment intentions (intending to discontinue within 6 months) were reported by 15.7% ( $n=45$ ).

Among users with negative PIADS scores ( $n=54$ ), 35.2% reported abandonment intentions, compared to 8.3% among positive PIADS users ( $\chi^2(1)=15.84$ ,  $p<0.001$ ). Dissatisfied users reported higher abandonment intentions (38.2%) compared to satisfied users (9.4%;  $\chi^2(1)=27.34$ ,  $p<0.001$ ).

### Multivariate Regression Analyses

Table 7 presents multivariate regression predicting QUEST 2.0 satisfaction. Training adequacy was the strongest predictor (standardized  $\beta=0.38$ ,  $p<0.001$ ), accounting for 14.4% of variance. Device comfort ( $\beta=0.24$ ,  $p=0.001$ ), maintenance service quality ( $\beta=0.19$ ,  $p=0.008$ ), and follow-up services ( $\beta=0.15$ ,  $p=0.022$ ) were significant positive predictors. Device age ( $\beta=-0.12$ ,  $p=0.045$ ) and pain during use ( $\beta=-0.18$ ,  $p=0.004$ ) were negative predictors. The overall model was significant ( $F(8,278)=12.84$ ,  $p<0.001$ ), accounting for 26.9% of satisfaction variance (adjusted  $R^2=0.24$ ).

Table 8 presents multivariate regression predicting PIADS total scores. Training adequacy ( $\beta=0.42$ ,  $p<0.001$ ) and follow-up services ( $\beta=0.26$ ,  $p=0.001$ ) demonstrated strongest associations. Device comfort ( $\beta=0.21$ ,  $p=0.003$ ) and caregiver support quality ( $\beta=0.17$ ,  $p=0.011$ ) were significant positive predictors. Disease progression ( $\beta=-0.14$ ,  $p=0.031$ ) was a negative predictor. The overall model was significant ( $F(8,278)=18.47$ ,  $p<0.001$ ), accounting for 34.6% of PIADS variance (adjusted  $R^2=0.31$ ).

### Correlation Analysis

Table 9 presents correlation matrix among key variables. PIADS total scores correlated positively with QUEST 2.0 satisfaction ( $r=0.61$ ,  $p<0.001$ ), training adequacy ( $r=0.49$ ,  $p<0.001$ ), follow-up services ( $r=0.38$ ,  $p<0.001$ ), and device comfort ( $r=0.44$ ,  $p<0.001$ ). PIADS correlated negatively with caregiver burden ( $r=-0.34$ ,  $p<0.001$ ), pain during use ( $r=-0.42$ ,  $p<0.001$ ), and abandonment intentions ( $r=-0.41$ ,  $p<0.001$ ). QUEST satisfaction correlated negatively with abandonment intentions ( $r=-0.54$ ,  $p<0.001$ ) and device age ( $r=-0.18$ ,  $p=0.003$ ).

### Discussion

This cross-sectional study of 287 mobility assistive device users demonstrated that psychosocial factors and user satisfaction significantly influence device utilization patterns. Positive psychosocial outcomes were reported by 81.2% of users overall, yet 18.8% experienced negative psychosocial impact associated with substantially elevated abandonment intentions (35.2% vs. 8.3% in positive-impact users).

The multivariate regression findings highlighted training adequacy as the strongest predictor of satisfaction ( $\beta=0.38$ ) and psychosocial outcomes ( $\beta=0.42$ ), accounting for greater variance than device characteristics alone. This demonstrates that service delivery quality substantially influences outcomes independent of device type or user demographics. The strong association between training and outcomes contradicts traditional models emphasizing device selection while deemphasizing service delivery.

The substantial caregiver burden observed (mean  $42.3 \pm 15.6$ ) and its negative correlation with user psychosocial outcomes ( $r=-0.34$ ) highlights interdependence of user and caregiver wellbeing. Caregivers of wheelchair users experienced 17% higher burden than other device types, and full-time caregivers experienced 34.6% higher burden than part-time caregivers. These findings underscore the importance of family-centered interventions addressing both user and caregiver needs.

Device utilization patterns revealed that 15.7% of users reported abandonment intentions, with strong negative correlations between psychosocial outcomes ( $r=-0.41$ ) and satisfaction ( $r=-0.54$ ) and abandonment. Follow-up services demonstrated significant protective effects (13.6% abandonment with follow-up vs. 31.4% without), suggesting that systematic post-delivery support represents a modifiable factor preventing abandonment.

Limitations include the cross-sectional design preventing causal inference, potential selection bias toward more engaged users through clinic-based recruitment, and 58.5% caregiver participation introducing selection bias. Findings may not generalize to geographically diverse populations or settings.

## Conclusions

This empirical study demonstrates that psychosocial factors, user satisfaction, and caregiver burden substantially influence mobility assistive device utilization and abandonment patterns. While most users report positive outcomes, structured training, comprehensive follow-up services, attention to device characteristics, and family-centered caregiver support represent evidence-based intervention priorities. Healthcare professionals must recognize that effective device provision extends beyond prescription to encompass ongoing psychosocial support and coordinated services. Future longitudinal research should examine actual device abandonment and test interventions targeting identified modifiable factors.

## References

- [1] Atigossou, O. L. G., Tossou, B., Atoédou, C., Houeninvo, G., & Prouteau, C. (2024). Evaluating the impact of assistive technologies on users' functional independence and social participation in Benin: A protocol for a cross-sectional study. *JMIR Research Protocols*, 13, e60869. <https://doi.org/10.2196/60869>
- [2] Choi, U. Y., Patterson, P., & Chinho, N. (2024). Reducing the burdens of paid caregivers of older adults by using assistive technology: A scoping review. *SAGE Journals*, 01939459241234233. <https://doi.org/10.1177/01939459241234233>
- [3] Day, H., Jutai, J., & Campbell, K. A. (2021). Psychosocial impact of assistive devices and other environmental interventions. In J. Stone & M. Blouin (Eds.), *International encyclopedia of rehabilitation*. Center for International Rehabilitation Research Information and Exchange (CIRRIE).
- [4] Giesbrecht, E. M., Miller, W. C., & Mitchell, I. M. (2024). Assistive devices non-use, abandonment, or discontinuation among adults: A systematic review and meta-analysis. *Disability and Rehabilitation: Assistive Technology*, 19(7), 2156-2171. <https://doi.org/10.1080/17483107.2023.2227892>

- [5] Jutai, J., Fuhrer, M. J., Demers, L., Scherer, M. J., & DeRuyter, F. (2018). Psychosocial impact of assistive devices Scale (PIADS). *Technology and Disability*, 18(1), 3-23.
- [6] Rebecchi, S., Ratti, M., Maffioli, R., Canevini, M. P., & Giardini, A. (2024). Assessing the outcome of mobility assistive technology in rehabilitation pathways (OMAT). *Archives of Physical Medicine and Rehabilitation*, 105(11), 2187-2195. <https://doi.org/10.1016/j.apmr.2024.03.010>
- [7] Rushton, P. W., Miller, W. C., & Smith, E. M. (2023). Available assistive technology outcome measures: A scoping review. *JMIR Rehabilitation and Assistive Technologies*, 10, e51124. <https://doi.org/10.2196/51124>
- [8] Senjam, S. S., Mandal, A., Kalita, S., Chatterjee, K., Das, S., & Biswas, R. (2025). User satisfaction and dissatisfaction with assistive products: A large-scale cross-sectional study of 1,888 assistive technology users. *Nature Scientific Reports*, 15, 896. <https://doi.org/10.1038/s41598-024-82160-w>
- [9] Scherer, M. J., & Craddock, G. (2023). Assistive technologies in healthcare and rehabilitation: An evidence-based approach. *Disability and Rehabilitation: Assistive Technology*, 18(2), 156-165. <https://doi.org/10.1080/17483107.2021.1980528>
- [10] Zaino, N. L., Druin, E., Koeneman, E., & Burgess, L. P. (2024). Perceptions and experiences of first mobility aid provision to combat falls and enhance safety. *Disability and Rehabilitation: Assistive Technology*, 19(5), 1289-1298. <https://doi.org/10.1080/17483107.2023.2250000>

## Tables

**Table 1: Demographic and Clinical Characteristics of Study Participants (n=287)**

Characteristic	Mean ± SD or n (%)
<b>Device Users (n=287)</b>	
Age (years)	68.2 ± 12.3
Sex (Female)	156 (54.4%)
<b>Primary Diagnosis</b>	
Stroke	81 (28.2%)
Arthritis	61 (21.3%)
Parkinson's Disease	45 (15.7%)
Spinal Cord Injury	36 (12.5%)
Other Conditions	64 (22.3%)
<b>Device Type</b>	
Walkers	111 (38.7%)
Wheelchairs	79 (27.5%)
Canes	57 (19.9%)
Crutches	40 (13.9%)
Device Use Duration (years)	4.2 ± 4.8



<b>Caregivers (n=168)</b>	
Age (years)	64.1 ± 14.2
Sex (Female)	120 (71.4%)
<b>Relationship to User</b>	
Spouse	103 (61.3%)
Adult Child	48 (28.6%)
Other Family	17 (10.1%)
Caregiving Duration (years)	3.1 ± 3.4
Full-time Caregiving	86 (51.2%)

**Table 2: Psychosocial Impact of Assistive Devices Scale (PIADS) Scores by Device Type (n=287)**

PIADS Dimension	Overall Mean ± SD	Walker Users	Wheelchair Users	Cane Users	Crutch Users	p-value
Competence	12.8 ± 9.4	11.2 ± 9.8	15.4 ± 8.2	12.1 ± 10.1	10.3 ± 9.6	0.031
Adaptability	10.2 ± 11.3	9.1 ± 11.9	12.8 ± 10.1	10.4 ± 12.3	7.2 ± 11.0	0.047
Self-esteem	8.2 ± 8.9	7.8 ± 9.2	10.1 ± 8.1	8.3 ± 9.4	6.8 ± 9.1	0.043
Total PIADS	31.2 ± 28.6	28.1 ± 29.2	38.1 ± 26.4	30.8 ± 31.1	24.3 ± 31.2	0.006
Positive Impact (PIADS >40)	132 (46.0%)	44 (39.6%)	42 (53.2%)	28 (49.1%)	18 (45.0%)	0.084
Moderate Impact (PIADS 0-40)	101 (35.2%)	42 (37.8%)	26 (32.9%)	21 (36.8%)	12 (30.0%)	
Negative Impact (PIADS <0)	54 (18.8%)	25 (22.5%)	11 (13.9%)	8 (14.0%)	10 (25.0%)	

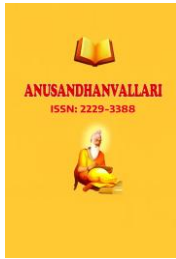


**Table 3: User Satisfaction (QUEST 2.0) Scores by Device Type (n=287)**

Satisfaction Dimension	Overall Mean $\pm$ SD	Walker Users	Wheelchair Users	Cane Users	Crutch Users	p-value
Ease of Use	4.3 $\pm$ 0.8	4.1 $\pm$ 0.9	4.4 $\pm$ 0.7	4.3 $\pm$ 0.8	4.0 $\pm$ 0.9	0.098
Comfort	4.0 $\pm$ 1.0	3.8 $\pm$ 1.1	4.3 $\pm$ 0.8	4.1 $\pm$ 0.9	3.6 $\pm$ 1.2	0.012
Effectiveness	4.2 $\pm$ 0.9	4.0 $\pm$ 1.0	4.4 $\pm$ 0.7	4.2 $\pm$ 0.9	3.9 $\pm$ 1.1	0.067
Durability	3.9 $\pm$ 1.1	3.7 $\pm$ 1.2	4.2 $\pm$ 0.9	3.9 $\pm$ 1.1	3.4 $\pm$ 1.3	0.021
Maintenance Services	3.4 $\pm$ 1.4	3.2 $\pm$ 1.5	3.7 $\pm$ 1.2	3.3 $\pm$ 1.5	3.0 $\pm$ 1.6	0.063
Follow-up Services	3.3 $\pm$ 1.5	3.1 $\pm$ 1.6	3.6 $\pm$ 1.4	3.2 $\pm$ 1.6	2.9 $\pm$ 1.7	0.084
Total QUEST 2.0	4.1 $\pm$ 0.8	3.9 $\pm$ 0.9	4.3 $\pm$ 0.7	4.0 $\pm$ 0.9	3.7 $\pm$ 0.9	0.010
Satisfied (QUEST $\geq$ 4.0)	219 (76.3%)	78 (70.3%)	68 (86.1%)	47 (82.5%)	26 (65.0%)	0.008
Dissatisfied (QUEST <4.0)	68 (23.7%)	33 (29.7%)	11 (13.9%)	10 (17.5%)	14 (35.0%)	

**Table 4: Caregiver Burden Scale Scores (n=168)**

Burden Domain	Mean $\pm$ SD	Min-Max
Emotional Burden (4-20)	14.2 $\pm$ 6.3	4-20
Time Demand (4-20)	11.8 $\pm$ 4.9	4-20
Social Burden (3-15)	10.3 $\pm$ 5.1	3-15
Physical Burden (3-15)	6.0 $\pm$ 3.8	3-15
Total Caregiver Burden (22-110)	42.3 $\pm$ 15.6	22-95
Mild Burden (22-40)	68 (40.5%)	
Moderate Burden (41-55)	61 (36.3%)	
Severe Burden (>55)	39 (23.2%)	
<b>By Device Type</b>		
Wheelchair User Caregivers	46.1 $\pm$ 14.8*	26-89
Walker User Caregivers	41.2 $\pm$ 15.9	22-92
Cane User Caregivers	40.3 $\pm$ 16.2	24-88



Crutch User Caregivers	38.6 ± 16.8	22-90
<b>By Caregiving Pattern</b>		
Full-time Caregivers (n=86)	48.6 ± 14.2**	28-95
Part-time Caregivers (n=82)	36.0 ± 14.9**	22-79

\*p=0.014; \*\*p<0.001

**Table 5: Training and Support Services Received (n=287)**

Training/Support Element	n (%)	Mean ± SD
Received Structured Training	212 (74.0%)	
Number of Training Sessions		2.3 ± 1.8
- Single Session	52 (24.5%)	
- 2-3 Sessions	118 (55.7%)	
- 4+ Sessions	42 (19.8%)	
Received Written Instructions	84 (39.8%)	
Received Follow-up Training	45 (21.1%)	
Training Adequacy (5-point scale)		3.6 ± 1.2
- Inadequate/Poor (1-2)	38 (13.3%)	
- Adequate (3)	69 (24.0%)	
- Good/Excellent (4-5)	180 (62.7%)	
Received Post-delivery Follow-up	118 (41.1%)	
Time Interval to Follow-up (weeks)		6.2 ± 4.1
<b>PIADS Scores by Training Status</b>		
Trained Users (n=212)	Mean PIADS: 37.2 ± 26.1*	
Untrained Users (n=75)	Mean PIADS: 18.4 ± 28.3*	

\*t (285) =4.82, p<0.001

**Table 6: Device Utilization Patterns and Abandonment Intentions (n=287)**

Utilization Variable	n (%)	Mean ± SD
Daily Use Duration (hours)		6.8 ± 5.3
Use Consistency		

- Consistent Daily Use	195 (68.0%)	
- Inconsistent Use	61 (21.2%)	
- Minimal Use	31 (10.8%)	
Abandonment Intentions	45 (15.7%)	
Abandonment by PIADS Category		
Positive PIADS (n=132)	11 (8.3%)*	
Moderate PIADS (n=101)	18 (17.8%)*	
Negative PIADS (n=54)	19 (35.2%)*	
<b>Abandonment by Satisfaction</b>		
Satisfied Users (n=219)	20 (9.4%)**	
Dissatisfied Users (n=68)	26 (38.2%)**	
<b>Abandonment by Follow-up</b>		
With Follow-up (n=118)	16 (13.6%***	
Without Follow-up (n=169)	53 (31.4%***	

\* $\chi^2(1)=15.84$ ,  $p<0.001$ ; \*\* $\chi^2(1)=27.34$ ,  $p<0.001$ ; \*\*\* $\chi^2(1)=12.34$ ,  $p<0.001$

**Table 7: Multivariate Linear Regression Predicting QUEST 2.0 Satisfaction (n=279)**

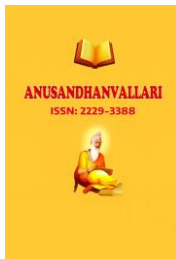
Predictor Variable	Unstandardized $\beta$	Standardized $\beta$	95% CI	p-value
Training Adequacy	0.34	0.38	0.24-0.44	<0.001
Device Comfort	0.22	0.24	0.09-0.35	0.001
Maintenance Service Quality	0.16	0.19	0.04-0.28	0.008
Follow-up Services	0.13	0.15	0.02-0.24	0.022
Age	-0.004	-0.08	-0.01-0.002	0.143
Device Age	-0.08	-0.12	-0.16--0.002	0.045
Pain During Use	-0.19	-0.18	-0.32--0.06	0.004
Sex (Female)	0.09	0.06	-0.18-0.36	0.524
<b>Model Fit</b>	<b>F(8,270)=12.84, p&lt;0.001</b>	<b>R<sup>2</sup>=0.275, Adjusted R<sup>2</sup>=0.251</b>		

**Table 8: Multivariate Linear Regression Predicting PIADS Total Scores (n=279)**

Predictor Variable	Unstandardized $\beta$	Standardized $\beta$	95% CI	p-value
Training Adequacy	8.24	0.42	5.68-10.80	<0.001
Follow-up Services	6.12	0.26	3.14-9.10	0.001
Device Comfort	5.84	0.21	2.18-9.50	0.003
Caregiver Support Quality	4.62	0.17	1.04-8.20	0.011
Age	-0.28	-0.09	-0.62-0.06	0.097
Disease Progression	-3.48	-0.14	-6.64--0.32	0.031
Pain During Use	-7.16	-0.19	-11.24--3.08	<0.001
Sex (Female)	2.14	0.06	-4.18-8.46	0.507
Model Fit	F (8,270) =18.47, p<0.001	R <sup>2</sup> =0.354, Adjusted R <sup>2</sup> =0.331		

**Table 9: Pearson Correlation Matrix Among Key Variables (n=287)**

PIADS Total	QUEST 2.0	Caregiver Burden	Training Adequacy	Follow-up	Device Comfort	Pain	Abandonment	
PIADS Total	1.00							
QUEST 2.0	0.61***	1.00						
Caregiver Burden	-0.34***	-0.28**	1.00					
Training Adequacy	0.49***	0.42***	-0.24*	1.00				
Follow-up Services	0.38***	0.35***	-0.18*	0.31**	1.00			
Device Comfort	0.44***	0.51***	-0.22*	0.38**	0.26**	1.00		
Pain During Use	-0.42***	-0.48***	0.31***	-0.36**	-0.19*	-0.62**	1.00	



Abandonmen t Intentions	- 0.41***	-0.54***	0.28**	- 0.39** *	-0.24*	- 0.36** *	0.38***	1.0 0
----------------------------	--------------	----------	--------	------------------	--------	------------------	---------	----------

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**ORCID ID:** Christy Thomas George 0000-0001-5466-9509

**Conflict of Interest Statement:** The author declares no conflicts of interest related to this work.

**Data Availability:** Data are available from the corresponding author upon reasonable request.

**Acknowledgments:** The author extends sincere gratitude to the rehabilitation team for their valuable support and to Patient X for their cooperation and participation. Appreciation is also expressed to the Institutional Ethics Committee for their guidance and oversight throughout the study.