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Actual use of and satisfaction associated with rollators and “shopping carts” among frail elderly Japanese people using day-service facilities

[Author list]
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ABSTRACT

Purpose: This study aimed to clarify the actual use of and satisfaction with rollators and “shopping carts” (wheeled walkers with storage) among frail elderly people, who were certified by a long-term care insurance system as users of facilities that provide day-service nursing care and rehabilitation.

Methods: We identified 1,247 frail elderly people who used day-service facilities, and evaluated their actual use of, and satisfaction with, rollators and shopping carts.

Results: Forty-four (3.5%) individuals used rollators, and 53 (4.3%) used shopping carts. The shopping cart group contained more individuals who were certified as care level 1 (26.4%), compared to the rollator group (20.5%), and 52.8% of the shopping cart group was certified as care levels 1–3. The scores for “repairs & services” and “follow-up” from the Quebec User Evaluation of Satisfaction with assistive Technology second version (QUEST 2.0) survey were significantly higher in the rollator group than in the shopping cart group.

Conclusions: The QUEST 2.0 scores revealed that shopping cart users exhibited insufficient “repairs & services” and “follow-up” scores. As frail elderly people with poor care status accounted for > 50% of the shopping cart group, these individuals urgently need walking aids that are tailored to their care status.

Key words: rollator, shopping cart, QUEST 2.0, frail elderly people
INTRODUCTION

Elderly people often experience difficulty in walking that results from a number of factors, including cerebrovascular disease, knee osteoarthritis, and Parkinson’s disease, all of which are likely to develop later in life. Further, age-related declines in muscle strength, balance function, visual acuity, and cognitive function contribute to difficulty in walking. Therefore, the risk of falls among elderly people is between 10% and 25% [1], with approximately 5% of all elderly people experiencing a fall-related fracture [2]. Therefore, it is critical to ensure safe walking, in order to encourage independent daily living and maximization of participation potential in the elderly population.

Walking aids are commonly used to support independent walking and participation among elderly people [3]. For example, rollators are exceptionally good at improving stability and walking efficacy. For these reasons, the use of rollators has increased substantially in the elderly population [4]. In Western countries, occupational and physical therapists are involved in ensuring that walking aids are customized to elderly people and are suitable for improving the user’s walking ability [5]. Northern Europe has the most satisfactory public welfare service in the world [5], and rollators are frequently fitted by therapists in this region [6]. In addition, most assistive technologies (including assistive devices) are provided for free in Northern Europe if an individual has a walking disability that significantly affects daily living [7].

In Japan, a long-term care insurance system has been implemented to provide public access to walking aids among frail elderly people whose requirement for an assistive device has been certified. This long-term care insurance system is a social insurance system that was initiated in 2000 to support frail elderly people within the society, and the use of this service has rapidly expanded, especially for home care services [8,9]. Home care services include the rental of welfare equipment, such as rollators (Figure 1) [9]. In ISO 9999, rollators are defined as "Devices with handgrips and two or more wheels, possibly in combination with tips; Included are rollators with a seat for resting." [10] In Japan,
however, rollators are restricted to devices that "function to assist ambulation for persons who have difficulty walking, possessing a structure that supports body weight during travel, and has wheels, handles, or other structures that surround the body in front and on both sides." Such devices are covered by welfare equipment services under the long-term care insurance system. This construction consists of right and left frames that are connected by the pipes of the central part, forming a frame that surrounds the user's body and is stable even without support. Its center of gravity when the user is included normally falls within the base of support. Based on a decision by the Long-term Care Approval Board, applicants are categorized as having a care status of unqualified (self-reliant), support (levels 1 and 2), or long-term care (levels 1–5). Table 1 shows the characteristics of each long-term care requirement level in the Japanese Long-term Care Insurance System [11].

Once a person has been approved for an assistive device, guiding officers provide fittings to confirm that the device is customized to the user. This system of approval and fitting has reduced the effects of misfitting, misuse, or malfunction. According to the rental statistics for rollators (April 2014), elderly people who are certified as support levels 1–2 have the highest rate of use (28.6%), compared to those having a care level of 2 (26.7%) [12].

In Japan, “shopping carts” or “silver cars” (wheeled walkers with storage) are also widely used as walking aids by the elderly; the production volume for shopping carts in 2009 was approximately 430,000 units [13]. However, shopping carts are not covered by the insurance system, because they are intended for elderly people who can walk independently and carry baggage when leaving home.
Consequently, they are not available for rent as an assistance device, but are sold directly to individuals by general mass-market retailers. In terms of construction, shopping carts have at least 4 wheels, together with other components such as a handle, frame, and stoppers. Their center of gravity, as well as that of the user, is normally outside the base of support. Unfortunately, frail elderly people with poor care status frequently use shopping carts, with an increased risk of falls when the cart is not fitted to the individual’s walking ability. For example, the Japan Assistive Products Association reported that 186 deaths/serious injuries were caused by 22 types of assistive devices between 2007 and 2011 [14]. Among these assistive devices, shopping carts ranked 4th (12 accidents) and rollators ranked 7th (5 accidents). According to the National Consumer Affairs Center of Japan’s Injury Surveillance System, 30 cases of injury caused by shopping carts were recorded during the 5 year period from FY2004 to FY2008, most of which (27 cases, 90%) concerned injuries due to falls caused by stumbling or losing balance, although some cases were also reported that related to shopping cart quality, such as difficulty in changing direction or inability to walk in a straight line [15]. Therefore, we aimed to clarify the quantity of actual use of rollators and shopping carts among frail elderly people who used day-service facilities, as well as their satisfaction with these devices. We believe that this information can be used to clarify the mobility challenges that this population faces.

**SUBJECTS AND METHODS**

Frail elderly people who used day-service facilities in Nagasaki City were included in this study. A total of 10 institutions agreed to participate in this study (6 in the eastern part of the city, 3 in the north, and 1 in the south), after the Nagasaki City Welfare Service Council requested their cooperation in the project and explained the research purpose. This study adhered to the tenets of the Declaration of Helsinki, and all care was taken to prevent the identification of any participant using the data collected. Ethical approval was obtained from the Nagasaki University Graduate School of Biomedical Sciences.
To assess the actual levels of use, we first asked a representative of each institution to inform us of the number of individuals at each care needs level within their facility, according to the Long-term Care Insurance System, as well as the number of users of shopping carts and rollators. We then conducted individual interviews on the basis of the number of users of shopping carts and rollators; individuals who were interviewed were users of shopping carts or rollators who met the inclusion criteria described below. Individuals were considered eligible for the survey if they could hear, communicate verbally, did not have dementia, and consented to participate. Facility staff were asked to identify potential participants; the study flow chart is shown in Figure 2. Among potential participants, day-service staff identified confirmed users of rollators and shopping carts, and these users were surveyed for satisfaction with each assistive device.

Insert figure 2 about here

The Quebec User Evaluation of Satisfaction with assistive Technology second version (QUEST 2.0) was used to assess user satisfaction, and the modified Frenchay Activities Index (modified FAI) was used to assess life function. Other individual characteristics (sex, age, and family status) were also assessed. The first QUEST version was designed to identify user satisfaction and sources of dissatisfaction with assistive technology [16]. Demers et al. [17] developed the first version in 1996, and then the second version in 2000 [18]; Inoue et al. [19] published the Japanese version (QUEST-J) during 2008. QUEST 2.0 consists of 8 items regarding the assistive device (including dimensions, adjustments, and effectiveness) and 4 items regarding user satisfaction with the service from the vendor/manufacturer (including service delivery, professionalism, and follow-up); each item is scored on a 5-point scale. Demers et al. [20,21] have validated the test-retest reliability, inter-class reliability,
content validity, and construct validity of QUEST 2.0, and Kenny et al. [22] have reported that
QUEST is appropriate for evaluating wheelchair and seating devices. Moreover, several studies
regarding satisfaction with rollators have been conducted using QUEST [3, 6, 23, 24].

The modified FAI includes 15 items that are related to daily living and activities of social living
(preparing main meals, washing up after meals, washing clothes, light housework, heavy housework,
local shopping, social occasions, walking outside for > 15 min, actively pursuing hobbies, driving a
car/going on the bus, travel outing/car ride, gardening, household maintenance, reading books, and
gainful work). This tool’s reliability and validity have been confirmed in Japan [25]. For the present
study, the interviewer assessed each item using a 3-point scale, according to the frequency of
performing each activity during the last 3 and 6 months.

Descriptive statistics were used to describe the proportion of walking aid users according to care
status. The chi-square test was used to compare the sex, care needs levels, family status, and
environment around the home, for the rollator and shopping cart groups. The $t$ test was used to
compare the groups’ age and modified FAI scores. The total satisfaction score (total score) was defined
as the total QUEST 2.0 score, and the assistive device satisfaction score (assistive device score) and
service satisfaction score (service score) were calculated for each group; these scores were compared
using the Mann-Whitney U test. Furthermore, we stratified the answers as 1–3 and 4–5, based on the
methods of Wressle et al. [26], and compared the scores for 12 subscales using the chi-square test. All
analyses were performed using the JMP® 10(SAS Institute Inc., Cary, NC) software, and differences
were considered statistically significant at a p-value of < 0.05.

RESULTS

Between June 2014 and March 2015, responses were obtained from 10 day-service facilities in
Nagasaki City (6 in the eastern region, 3 in the northern region, and 1 in the southern region). These
responses identified 1,247 facility users; individuals according to care needs levels are shown in Table 2. The most common care needs level among the facility users was care level 1 (24.9%), which was followed by support level 2 (23.3%) and support level 1 (21.4%); only 1% of facility users were care level 5. Rollators were used by 44 (3.5%) facility users, and shopping carts were used by 53 (4.3%) facility users. We next calculated the proportions of individuals requiring each level of care among 44 users of rollators and 53 users of shopping carts. The most common care needs level in the rollator group was support level 2 (29.5%), which was followed by care level 2 (27.3%) and care level 1 (20.5%); the most severe care level associated with rollator use was care level 4 (2.3%). The most common care needs level in the shopping cart group was support level 2 (30.2%), which was followed by care level 1 (26.4%) and care level 2 (18.9%); the most severe care level associated with shopping cart users was care level 3 (7.5%).

Insert table 2 about here

Of the 44 rollator and 53 shopping cart users, 20 in each category met the inclusion criteria. Characteristics of the 40 participants who received individual interview are shown in table 3 (6 men, 34 women, mean age: 85.4, SD: 7.9 years, range: 64–99 years). The rollator group included 5 men and 15 women (mean age: 83.2, SD: 9.6 years, range: 64–99 years), and the shopping cart group included 1 man and 19 women (mean age: 87.6 SD 5.2 years, range: 76–94 years). No significant differences were observed according to age, sex, care needs levels, family status, or environment around the home between groups. However, the modified FAI score was significantly higher in the shopping cart group, compared to that of the rollator group.

Insert table 3 about here
With respect to QUEST 2.0 scores, no significant inter-group differences were observed for the total and assistive device scores. However, the service score was significantly higher in the rollator group (Table 4). In the item-by-item analysis for the 12 subscales, no significant inter-group differences were observed for the assistive device, service delivery, and professional service scores. However, the repairs & services and follow-up scores were significantly higher in the rollator group, compared to those in the shopping cart group (Table 5).

Insert table 4 about here

Insert table 5 about here

DISCUSSION

In this study, we investigated the actual use of and satisfaction with rollators and shopping carts among frail elderly people, according to their care status.

When studying the day-service facilities, the most common care needs level observed for rollator and shopping cart users was support level 2. However, more shopping cart users were care level 1 (26.4%), when compared to rollator users (20.5%); 52.8% of shopping cart users were care levels 1–3.

The average walking ability among frail elderly people is defined by multiple local governments in Japan [27–29]. In this context, care level 1 is defined as unstable standing-up or walking (with support required in some instances), care level 2 is defined as occasionally being unable to independently stand-up or walk, and care level 3 is defined as being unable to independently stand-up or walk. In the present study, we found that > 50% of shopping cart users were frail elderly people within care levels 1–3. Unfortunately, these individuals may have unknowingly continued to use a shopping cart, which does not accommodate their walking ability, without being advised to switch to a rollator. The fact that
there is no significant difference in assistive device score between people who use walking aids and
those who use shopping carts suggests that users are continuing to use shopping carts without having
received any instruction or advice from a specialist, and that they may not be aware of changes in the
way they use them or of the risks entailed. Intervention by specialists to fit frail elderly people with
poor care status who are using shopping carts as walking aids is thus an urgent task.

Japan’s Consumer Product Safety Association has indicated that shopping carts (or “silver cars”)
are not suitable for people who require assistance while walking or climbing stairs [30]. Therefore,
frail elderly people who require support during walking may have an increased risk of falls or other
accidents with continued shopping cart use. To reduce their risk of falling, these people should receive
an appropriate walking aid with a fitting that is tailored to their walking disability. As mentioned
above [6], therapists play an important role in fitting walking aids for elderly Northern European
people. However, the Japanese long-term care insurance system does not support in-home therapist
services; thus, therapists are only involved in fitting patients who are evaluated at their hospital.
Therefore, we believe that the long-term care insurance system should be adjusted to include therapist
fitting, which may help provide the benefits that are observed in Northern European countries.

With respect to the individual interviews, given the original intended purpose of shopping carts,
their users could naturally be expected to be of a lower care status, compared with users of rollators. In
this study, however, the only significant difference observed between the 2 groups was in FAI, which
was significantly higher for shopping cart users; there were no significant differences between the 2
groups in terms of age, sex, care needs levels, family status, or home environment.

When we evaluated assistive device satisfaction, the service, repairs & services, and follow-up
scores were significantly higher in the rollator group, compared to those in the shopping cart group.
The only similar study was conducted by the Association for Technical Aids (ATA) [31], which used
QUEST 2.0 to evaluate 311 frail elderly people who used rollators, and reported that the mean total,
assistive device, and service scores were 4.1, 4.0, and 4.2, respectively. Therefore, those results indicated higher satisfaction among rollator users, and our results confirm those findings. However, our results also indicate that shopping cart-related service (i.e. repairs & services and follow-up) should be improved, as the scores for these items were lower in our shopping cart group (compared to the rollator group). In this context, both rollators and shopping carts experience a decline in quality and performance over time (e.g. loosening of screws and frame distortion), and elderly people may experience difficulty in performing repairs and services on shopping carts. In contrast, rollator users are provided with regular repairs, services, and follow-up from guidance officers, which can preserve the function of their assistive device. Therefore, it appears that a system for repairs, services, and follow-up is needed for shopping carts. Thankfully, Kitajima [32] has reported that the largest Japanese manufacturer/distributor of “silver cars” has implemented an information system to provide periodic inspections to its customers, and we propose that this follow-up system should become an industry standard.

This study included several limitations. First, our sample size for evaluating assistive device satisfaction was small. Second, the cross-sectional design precludes any analysis regarding the changes in use and satisfaction over time. Third, we did not evaluate the walking ability of the participants. Therefore, future large-scale studies should be performed to validate our findings, and these studies should consider walking ability as an evaluation item.

CONCLUSION

We evaluated the actual use of rollators and shopping carts among frail elderly people who use day-service facilities. Although shopping carts should only be used by elderly people who are capable of independent walking (e.g. for carrying baggage), we found that > 50% of shopping cart users were frail elderly people with a poor care status. Therefore, we conclude that the fitting of walking aids
must be tailored to each person’s care status, and suggest that a system should be established to allow occupational or physical therapists to provide this fitting. Moreover, our analysis of the QUEST2.0 service scores revealed that repairs, services, and follow-up are insufficient to meet the needs of shopping cart users.
Declaration of Interests

This study was supported by a Grant-in-Aid for Scientific Research (C) (project no.15K01463 to Kiatajima E) from the Japan Society for the Promotion of Science. The authors declare no competing interests.
REFERENCES


of the telephone administration of the wheelchair outcome measure (WhOM) for middle-aged and

of the Quebec User Evaluation of Satisfaction with assistive Technology (QUEST 2.0) for adults with

[22] Kenny S, Gowran RJ. Outcome measures for wheelchair and seating provision: a critical


MA. The effects of a “new” walking aid on exercise performance in patients with COPD: a

[25] Suenaga H, Miyanaga K, HChisaka H, Kawazu T, Hachisuka K. Modified version of the
Medicine and Traumatology 2000;48:55-60. [Japanese]

[26] Samuelsson K, Wressle E. User satisfaction with mobility assistive devices: an important element

from: http://www.town.nishihara.okinawa.jp/goven-service/03-kaigo-03.html

http://www.city.tomisato.lg.jp/0000000986.html

[29] Sakai City, Osaka. Definition by care level. [cited 2015 Apr 29]. Available from:


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Figure 2 Study flow chart
<table>
<thead>
<tr>
<th>Care Level</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Level 1</td>
<td>Requires social support. Requires most basic actions of daily living, but requires some sort of support to prevent deterioration.</td>
</tr>
<tr>
<td>Support Level 2</td>
<td>Requires a greater level of social support. Ability to carry out actions involved in looking after himself or herself has further declined and requires some sort of support, but there is a high possibility that his or her condition will stay at the same level or improve.</td>
</tr>
<tr>
<td>Care Level 1</td>
<td>Requires partial care. Unstable when standing up or walking, and requires some sort of care in basic actions of daily living and with actions involved in personal care.</td>
</tr>
<tr>
<td>Care Level 2</td>
<td>Requires low-level care. Requires partial care when standing up or walking as well as in basic actions of daily living and with actions involved in personal care.</td>
</tr>
<tr>
<td>Care Level 3</td>
<td>Requires moderate care. Requires total care when standing up or walking as well as in basic actions of daily living and with actions involved in personal care.</td>
</tr>
<tr>
<td>Care Level 4</td>
<td>Requires high-level care. Has a significantly reduced capacity to carry out any actions of daily life, and would have difficulty in leading daily life without care.</td>
</tr>
<tr>
<td>Care Level 5</td>
<td>Requires the maximum level of care. Has a severely reduced capacity to carry out any actions of daily life, and would be unable to lead daily life without care.</td>
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### Table 2  Facility users’ care needs levels

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<tr>
<th>Care needs levels</th>
<th>Facility users</th>
<th>Walking aids (multiple answers allowed)</th>
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<tbody>
<tr>
<td></td>
<td>n = 1,247</td>
<td>Rollator n = 44(3.5%) Shopping cart n = 53(4.3%)</td>
</tr>
<tr>
<td>Support level 1</td>
<td>267 (21.4%)</td>
<td>2 (4.5%) 9 (17)</td>
</tr>
<tr>
<td>Support level 2</td>
<td>291 (23.3%)</td>
<td>13 (29.5%) 16 (30.2)</td>
</tr>
<tr>
<td>Care level 1</td>
<td>310 (24.9%)</td>
<td>9 (20.5%) 14 (26.4)</td>
</tr>
<tr>
<td>Care level 2</td>
<td>222 (17.8%)</td>
<td>12 (27.3%) 10 (18.9)</td>
</tr>
<tr>
<td>Care level 3</td>
<td>105 (8.4%)</td>
<td>7 (15.9%) 4 (7.5)</td>
</tr>
<tr>
<td>Care level 4</td>
<td>39 (3.1%)</td>
<td>1 (2.3%) 0 (0)</td>
</tr>
<tr>
<td>Care level 5</td>
<td>13 (1%)</td>
<td>0 (0%) 0 (0)</td>
</tr>
</tbody>
</table>
Table 3  Characteristics of the satisfaction survey participants

<table>
<thead>
<tr>
<th></th>
<th>All (n = 40)</th>
<th>Rollator (n = 20)</th>
<th>Shopping cart (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>85.4 SD 7.9</td>
<td>83.2 SD 9.6</td>
<td>87.6 SD 5.2</td>
</tr>
<tr>
<td>Sex (n %)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>6 (15.0)</td>
<td>5 (25.0)</td>
<td>1 (5.0)</td>
</tr>
<tr>
<td>Female</td>
<td>34 (85.0)</td>
<td>15 (75.0)</td>
<td>19 (95.0)</td>
</tr>
<tr>
<td>Care needs levels (n %)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support level 1</td>
<td>5 (12.5)</td>
<td>0 (0)</td>
<td>5 (25.0)</td>
</tr>
<tr>
<td>Support level 2</td>
<td>11 (27.5)</td>
<td>6 (30.0)</td>
<td>5 (25.0)</td>
</tr>
<tr>
<td>Care level 1</td>
<td>9 (22.5)</td>
<td>5 (25.0)</td>
<td>4 (20.0)</td>
</tr>
<tr>
<td>Care level 2</td>
<td>9 (22.5)</td>
<td>6 (30.0)</td>
<td>3 (15.0)</td>
</tr>
<tr>
<td>Care level 3</td>
<td>5 (12.5)</td>
<td>2 (10.0)</td>
<td>3 (15.0)</td>
</tr>
<tr>
<td>Care level 4</td>
<td>1 (2.5)</td>
<td>1 (5.0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Care level 5</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Family status (n %)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>13 (32.5)</td>
<td>6 (30.0)</td>
<td>7 (35.0)</td>
</tr>
<tr>
<td>Family consists of only persons who are ≥65 years old</td>
<td>9 (22.5)</td>
<td>4 (20.0)</td>
<td>5 (25.0)</td>
</tr>
<tr>
<td>Family consists of only persons who are &lt;65 years old</td>
<td>17 (42.5)</td>
<td>10 (50.0)</td>
<td>7 (35.0)</td>
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<tr>
<td>Living in a facility</td>
<td>1 (2.5)</td>
<td>0 (0)</td>
<td>1 (5)</td>
</tr>
<tr>
<td>Environment around home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sloping road</td>
<td>11 (27.5)</td>
<td>5 (25.0)</td>
<td>6 (30.0)</td>
</tr>
<tr>
<td>Street irregularities (not flat)</td>
<td>8 (20.0)</td>
<td>5 (25.0)</td>
<td>3 (15.0)</td>
</tr>
<tr>
<td>Both of the above</td>
<td>6 (15.0)</td>
<td>3 (15.0)</td>
<td>3 (15.0)</td>
</tr>
<tr>
<td>None of the above</td>
<td>15 (37.5)</td>
<td>7 (35.0)</td>
<td>8 (40.0)</td>
</tr>
<tr>
<td>Modified FAI score</td>
<td>12.7 SD 7.9</td>
<td>8.9 SD 6.9</td>
<td>16.5 SD 7.1</td>
</tr>
</tbody>
</table>

*P < 0.05, **P < 0.01

The X² test was used for sex, stage of care needed, family status, and environment around home
The t test was used for age and modified Frenchay Activities Index (FAI) score
Table 4  QUEST 2.0 scores for uses of rollators and shopping carts

<table>
<thead>
<tr>
<th>QUEST 2.0 score</th>
<th>Rollator (n = 20)</th>
<th>Shopping cart (n = 20)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3.9 SD 0.6</td>
<td>3.6 SD 0.2</td>
<td></td>
</tr>
<tr>
<td>Assistive device</td>
<td>3.9 SD 0.7</td>
<td>4.0 SD 0.4</td>
<td></td>
</tr>
<tr>
<td>Service</td>
<td>3.9 SD 0.7</td>
<td>2.8 SD 0.5</td>
<td>***</td>
</tr>
</tbody>
</table>

***P < 0.001 using the Mann-Whitney U test
Table 5  Item-by-item analysis of rollator and shopping cart users

<table>
<thead>
<tr>
<th>Items</th>
<th>Rollator (n = 20)</th>
<th>Shopping cart (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% subjects</td>
<td>% subjects</td>
</tr>
<tr>
<td></td>
<td>'quite satisfied' or 'very satisfied'</td>
<td>'quite satisfied' or 'very satisfied'</td>
</tr>
<tr>
<td></td>
<td>(4–5)</td>
<td>(1–3)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Weight</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>Adjustment</td>
<td>67</td>
<td>33</td>
</tr>
<tr>
<td>Safety</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Durability</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Ease of use</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Comfort</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Service delivery</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Repairs &amp; services</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>Professional service</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>Follow-up</td>
<td>55</td>
<td>45</td>
</tr>
</tbody>
</table>

***P < 0.001, ns = not significant, using the χ² test
Figure 1

Rollator

Shopping cart
Facility users  
\( n = 1,247 \)

Use walking aids

Do not use walking aids

Rollator  
\( n = 44 \)

Shopping cart  
\( n = 53 \)

Rollator  
\( n = 20 \)

Shopping cart  
\( n = 20 \)

(1) Can communicate verbally, (2) no dementia, (3) consent to participate in the survey