Accessibility, safety and security for older persons in the local outdoor environment

The demonstration project “Let’s go for a walk”
Summery Final report
Agneta Ståhl & Susanne Iwarsson
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SUMMARY

BACKGROUND

It is a well-known fact that age-related functional disabilities are a common problem and have an impact on people’s mobility. Mobility is an essential component in people’s daily lives and activities. Consequently, it is important to create conditions that will enable people to maintain their mobility and participation so that they can preserve their functional capacity and forestall additional functional disabilities. Accessibility to the physical environment in a wide sense is important for older people’s circumstances in society. In many cases, designing the physical environment to meet the requirements and conditions of older people will reduce the need for special solutions. Another group in society which has been in focus during the latest years is persons with vision impairments. Continuous guidance routes are implemented using different structure at the guidance surfaces. Research in experimental environments has, however, showed that persons who are blind have great difficulties in detecting differences between guidance surfaces and warning surfaces used today.

Society has legislated measures to increase accessibility to and usability of the physical environment (homes, public premises, public outdoor environments, public transport). Proposition 1999/2000:79, "From patient to citizen - A national action plan for disablement policy", calls for accessibility and usability for everyone in all sectors of society. The National Board for Housing, Building and Planning has followed up this legislation by issuing regulations for how walking environments should be designed in order to become more accessible and usable for everyone (BSF 2003:19 HIN 1 and BSF 2004:15 ALM 1).

Nevertheless, older people often feel that the accessibility of the pedestrian environment is poor and that it is difficult for them to move about freely in their immediate neighbourhood. The degree of accessibility in an area is closely linked to safety, since pedestrians’ falls in the walking environment are often caused by obstacles in the surroundings. Hence safety is yet another important aspect that has an impact on older people’s mobility outdoors. In Sweden, accidents among older pedestrians and bicyclists account for more than three fourths of older people’s accidents in traffic. More than 60 % of all injuries afflicting older people outside their homes are caused by accidents involving unaccompanied pedestrians, i.e. they have fallen while walking alone. Falls are also often caused by factors that have been identified as environmental obstacles.

AIM

One important starting point for this research project was an ambition to create increased accessibility and safety for older people by involving them and letting them participate in a planning process for the outdoor environment in their own residential area. The overriding goal of the study was to identify and prioritise concrete measures to improve accessibility and safety in a residential area by fully integrating the older people in a process-oriented project. The first aim of the project was to accumulate knowledge of how to design environments so that older people will be able to reach their destinations, i.e. places older people wish to visit in the study district and its vicinity, safely and securely. Another aim was to apply and administer the knowledge acquired by working in a way that will raise consciousness among decision makers, landlords and planners of which details in the outdoor environment are important when planning for a mobile and active ageing process in society.

The project is based on the active involvement and participation of older people themselves in designing their local environment in terms of accessibility, safety and security. In 2002, a process
spanning over several years was initiated where the older residents took part in mapping the existing problems and deficiencies in the outdoor environment in their residential area, developing a programme aimed at dealing with those problems and deficiencies and following up the results four years later. Another important aspect of the project was to disseminate the knowledge and experiences generated in the course of the project.

METHOD

The project was implemented in a geographically limited area in central Kristianstad, in three adjoining residential areas: Söder, Udden and Lastageplatsen. This area was interesting from several perspectives: a high proportion of older people, varying housing with different types of buildings erected during different periods of the 20th century, etc. At the initiation of the project, some 3,000 people were living in the area, 20% of whom were 65 years old or older.

The method applied in the project is based on so-called "triangulation", which, in brief, means that the project consists of different partial studies where different methods are applied (Patton, 2002). Using several different methods implies that the phenomenon in question is illuminated in different ways, which reinforces the validity and reliability of the results. Consequently, the results from the different studies included in this undertaking could reinforce one another in the conclusions reached in the overall project. The project included three parts that, in turn, consisted of several substudies.

Part 1, which was implemented in 2002, included the process of designing programmes for measures to be taken and consisted of three substudies: a postal questionnaire distributed to all the residents in the area under investigation, i.e. 566 people, 60% of whom or 330 people, filled in and returned the questionnaire; participatory observations and objective assessments of the environment by six people in order to map obstacles in the outdoor environment; and a Research Circle for developing a programme of measures, i.e. 16 people, eight of whom represented older people and eight the municipality, authorities and interest organisations.

Part 2, which was carried out between 2002 and 2006, involved projecting and implementing measures.

Part 3, which was carried out in 2006 and 2007, was a follow-up study after four years, divided into three parts: a postal questionnaire distributed to 526 people and filled in and returned by 66%, i.e. 347 people; participatory observations and objective assessments of the environment by six people; and focus group interviews with five people. The aim of the follow-up study was to study changes over time, i.e. before and after implementing measures in the outdoor environment in the area under investigation. The results are partly based on comparisons of the postal questionnaires and the participatory observations as well as the objective assessments of the environment, and partly on the results collected by means of focus group interviews in January 2007.

Prior to the analysis, the people who had filled in the questionnaire were divided into the following groups:

**The Follow-up group** illustrates a population and describes everyone who filled in the postal questionnaire in both 2002 and 2006 (n = 195; P02 and P06, respectively). Hence this group constitutes one part of the Residential group and is the sample that could be followed over time, i.e. before and after implementing measures. The Follow-up group consisted of 195 people, the average age being 74 in 2002 and 78 in 2006. 61% were female and 39% male.

**The Residential group** illustrates a cross-section and describes everyone who filled in the postal questionnaire in 2002 (n = 330; T02) and in 2006 (n = 347; T06). The Residential group cannot be followed over time, since some of those who responded in 2006 did not live in the district studied in 2002, while others, who had reached 65 in the years following the first questionnaire, had only been asked to participate on the follow-up occasion (n = 109). In addition, the 2006 questionnaire was filled in by some people (n = 43) who had been selected in 2002 but did not participate that year. The
residential groups were essentially similar in terms of gender and age on the two occasions, i.e. 63% were female and 37% male in 2006 as opposed to 61% and 39% in 2002, and the average age was 76 on both occasions. The results of the postal questionnaire were analysed by means of descriptive statistics as well as statistical tests for the Follow-up group (McNemar’s Test and Wilcoxon’s Sign Rank Test) in order to check for differences between subgroups and changes over time. The results are interpreted as statistically guaranteed at p<0.05, i.e. with a 5% error margin.

RESULTS

Part 1 of the study resulted in a suggestion for a programme of measures to be taken, presented to the municipality by the participants in the Research circle. These measures were based on the strategies presented by the residents and the municipality/the Swedish Road Administration in the later phase of the Research circle. “Accessibility for people using walkers” was assigned top priority among the residents, while the municipality/the Swedish Road Administration assigned top priority to “Simple and not too costly measures”. In addition to this basic strategy, it was decided that the measures were to be implemented along important corridors, adopt a global perspective and benefit as many of the residents in the area as possible. The measures suggested were classified into the following two categories (measures that were assigned top priority by both groups are in boldface):

General measures: separating pedestrians and bicyclists/mopedists, better signposting, improved conditions for walking, speed reduced to 30 km/h, more benches, better snow clearance/handling of slippery conditions, improved maintenance/cutting of hedges etc., better information to bicyclists about traffic rules, behaviour in traffic etc., improved maintenance (removal of leaves, sweeping etc.).

Selective measures: more, and better designed, pedestrian crossings, signal regulation, wider pavements, more bus stops, bevelled edges at pedestrian crossings and other strategic locations, less slope in intersecting pavements, smoother surfaces on pavements, removal of steps into buildings, and one-way streets.

In Part 2 of the project, measures were implemented. Pictures 1-5 below illustrate examples of different types of measures taken. The various locations are shown before and after the implementation of measures.

**Picture 1.** Example of bevelling of kerbstone as well as guiding surface and warning surface before kerb. *Photo: L. Glans and M. Almén.*
**Picture 2.** Detailed picture of bevelling of kerbstone as well as guiding surface and warning surface before kerb. *Photo: L. Glans and M. Almén.*

*Before reconstruction  After reconstruction*

**Picture 3.** Example of elimination of difference in level before entrance. *Photo: L. Glans and M. Almén.*

*Before reconstruction  After reconstruction*

**Picture 4.** Example of introducing one-way traffic in a street as well as widening of pavement, contrast marking and bevelling of kerbstone. *Photo: L. Glans and M. Almén.*

*Before reconstruction  After reconstruction*
The evaluation in Part 3 of the project focussed on the effects of the measures implemented. The issue evaluated was whether the measures taken within the framework of the project had made the outdoor environment more accessible and safe for the residents in Söder, Udden and Lastageplatsen. We can establish that our goal has been achieved, at least in part. Accessibility in the area had improved. The proportion of people who experienced problems in traffic and in the pedestrian environment fell between the two occasions studied. The proportion of those who reported isolated obstacles had also fallen by the time of the follow-up. It is particularly interesting to note that those deficiencies that were assigned the highest priority for measures to be taken by the older residents in Part 1 of the study had been most reduced, e.g. holes in the pavement, not enough bevelling, poor snow clearance and maintenance during slippery conditions, bicyclists and mopedists on the pavement and too few benches.

The results from the participatory observations corroborate those obtained in the postal questionnaire, i.e. that the number of obstacles had been reduced. In the participatory observations in 2006, there were fewer registered critical incidents, and the participants’ personal comments were often positive rather than negative. According to the accompanying observer, the walk now often went more smoothly and easily, but the occasional obstacle was nevertheless registered along the pedestrian corridors in 2006. The objective assessment of the environment in 2006 revealed that there are still obstacles in the environment that must be dealt with if the area is to be considered accessible. This applies, for example, to slopes, the location of pedestrian crossings, the width of pavements and
certain irregularities in the walking surface as well as other "details", such as armrests on benches. It is also important to establish that some obstacles cannot be "built away" but are due to poor observation of rules among other road-users, e.g. cars parked at bevelled kerbs, bicycles parked on pavements etc.

The measures implemented appear to have had an impact on how people experience their safety and security in the area. Nevertheless, the Follow-up group continued to express a feeling of insecurity moving about in the area even in 2006. One reason contributing to this may, of course, be related to the individuals and the fact that people in the group were now four years older and may consequently have been suffering from additional functional disabilities. But the environment, e.g. the speed of bicyclists, also causes the insecurity. Even though very useful measures had been taken to separate bicyclists and pedestrians, many people feel that bicyclists are bad at observing traffic rules and that the municipality should pay more attention to them.

Nonetheless, there are some measures that appear to have had an impact on people’s feeling of safety; for example, the proportion of people who gave fast and heavy traffic as the reasons for experiencing problems had fallen in the Follow-up study in 2006. Consequently the measures taken in order to reduce the amount of traffic as well as the speed in the area seem to have had an effect. They do not, however, appear to have had any impact on people’s feelings of insecurity and their fear of meeting with an accident. One reason for their fear, which was not specifically illustrated in the postal questionnaire but which emerged in the focus group interviews, was anxiety about the removal of pedestrian crossings in the area. People’s fear of falling, however, was greatly reduced between the two occasions studied. The measures whose implementation was assigned top priority were such that they were intended to improve accessibility and mobility for pedestrians in the area by improving the surface paving, bevelling kerbstones, widening pavements etc. Hence these measures appear to have had the desired effect also in terms of the safety experienced by the residents.

It is interesting to note that the proportion of people who stated that they were afraid of assaults and robbery was reduced between the two occasions studied. It is, however, difficult to say whether this is related to the measures taken or whether this change has been caused by other factors. Nevertheless, one hypothesis might be that the more people who are moving about in the outdoor environment, the safer one feels there. Another factor that may have an impact on people’s anxiety about being robbed and assaulted is, of course, illumination, which was improved, at least in certain parts of the area. One result that corroborates this hypothesis is that the number of people who indicated bad illumination as an obstacle was greatly reduced between the two occasions studied.

One result of the study was to be expected, i.e. that the older people’s mobility would improve after measures had been taken. It may seem odd that the number of people who would like to be able to spend more time outdoors in their residential area had increased after measures had been taken, particularly since the proportion of those who felt that there were obstacles to their mobility had been greatly reduced after the measures had been taken. Other remarkable results are that the number of people who stated that they would like to participate in more activities had doubled, and that the proportion of people who spent time outdoors in Kristianstad in general had fallen. The difference between the two occasions studied was greatest in the Follow-up group. A great deal of the change described above can probably be ascribed to the fact that the Follow-up group had aged by four years. The results show that the participants in the studies in both 2002 and 2006, i.e. the Follow-up group, assessed that their health had deteriorated and that they had more functional disabilities in 2006 than in 2002. About two thirds of those who were dissatisfied with their possibilities for outdoor activities also gave their own health situation as the reason for this. In spite of the older people’s dissatisfaction with their possibilities for outdoor activities, it is gratifying to note that their dissatisfaction cannot be ascribed to obstacles in their walking environment. The results imply that the measures taken in the neighbourhood had positive effect and have indeed increased the accessibility and usability in the area, but measures in the walking environment are not enough do compensate for other factors impacting the mobility in an ageing population, not the least the personal health.

The number of people who felt that it was deficiencies in public transport that caused them to spend less time outdoors than they would have liked to had fallen in the follow-up study. Consequently, the measures taken in bus traffic in the area appear to have had a certain positive effect, although the
Follow-up group in the 2006 evaluation did not evaluate those measures very highly. In this context it should, however, be pointed out that the access to cars in the Follow-up group had been greatly reduced between the two occasions studied. This naturally has an impact on how people experience their mobility and opportunities for participating in activities, even in a local perspective.

Although the effects on the older people’s mobility of the measures taken appeared to be fairly small, both the Follow-up group and the Residential group generally evaluated the measures implemented very positively. The top items in the list of measures that are most important for accessibility in the area were: general maintenance of pavements, especially during snowy and slippery conditions, and separation of bicyclists and pedestrians. This is in line with the results of the prioritisation of measures in Part 1 of the study. These measures were also assigned high positions in the evaluation of selective measures, although the bevelling and removal of kerbstones came in at the top. More benches in the area was one of the measures assigned a high position in the priority list in Part 1, but in the 2006 evaluation of measures it fell further down the list. This lower ranking of benches in the evaluation may be due to the fact that other measures, e.g. bevelling and levelling pavements as well as fewer bicyclists on pavements and footpaths, were evaluated higher in comparison. This does not, however, imply that benches are not important for older people’s mobility in their residential area. On the contrary, it can be established that a larger number of benches was particularly mentioned both in the participatory observation and in the objective environmental assessment as a factor contributing to improving accessibility and the usability in the area.

Within the framework of the project a special effort was made to implement measures for people with impaired vision, above all in the through passages in Söder to Maxi or central Kristianstad. Natural guiding surfaces were complemented with artificial ones in the form of sinus slabs at gaps, and sinus slabs were placed at intersections to lead up to a warning area of cupola slabs (Ståhl & Almén, 2007). Measures were also taken to improve light contrasts in the area. These measures are evaluated lower than the other measures in the 2006 evaluation. Guided corridors were also evaluated lower than contrast markings, which is to be expected since contrast markings are likely to be important for a larger number of older people than artificial and natural guiding surfaces for creating continuous corridors. However, the focus group interviews conducted in 2007 revealed that the measures for people with impaired vision had been observed, and that they were considered very important and useful for the visually impaired.

It is naturally important for the municipality to establish to what extent the residents in Söder, Lastageplatsen and Udden experience that they have benefited from the measures implemented. If "benefiting" implies how the problems experienced in the area, including accessibility, have changed, there is no doubt that the measures have been beneficial. They are so extensive that no one in the area can have escaped noticing what has been done, and even though some people may not be in immediate need of all the measures implemented, they feel that they have been useful for "those who need them", realizing that one day they may come in handy for themselves as well. The residents felt that it is easier to move about in the pedestrian environment now, that it is good to have benches etc.

The benefits people experienced of the project are, of course, also closely linked to the expectations they placed on the municipality and the project as such when it was initiated in 2002. The focus group interviews in 2006 revealed that, for many reasons, people might not have had very great expectations. One contributing reason quoted was that "the municipality did not seem to be in very good control" of the project. People who tried to contact the municipality to discuss, for example, the measures taken in the course of the project, were often put in touch with people with little knowledge of the project, e.g. what measures were to be implemented and where. The project was in progress over a long period of time, and it was difficult for the municipal employees to assign the same degree of relevance to it since they were constantly discussing and planning new projects. This naturally also has an impact on the flow of information. The evaluation in 2006 revealed that people felt that "nobody talked about" the project for long periods of time. The municipality and the Swedish Road Administration invested large resources on information, particularly during the first few years, when e.g. the measures to be implemented were given priority. The aim of this was to anchor these measures as much as possible in public awareness. It is perhaps doubtful whether this effort was successful. Nevertheless, about two
thirds of those who were explicitly asked in the postal questionnaire whether they felt the information had had an impact said that they thought so.

CONCLUSION

The design of the project, with the older people participating as natural actors throughout the entire process, engendered great credibility concerning the project and the results. The results that have been obtained concerning the effects of the measures taken, some of them very positive and others less so and more unexpected, have been achieved in a project characterised by the participation of users. The project has also had spin-off effects. First of all, the older residents got to know each other in a different way than previously. They have made new contacts and friends. The project has been instrumental in starting up other activities among the residents that have created a feeling of solidarity in the area. The design of the project has provided the older people with new channels to the municipality, organisations and associations. They have also played a very active part in disseminating information about the project, on the national as well as the international level, which has enabled them to express their opinions of the project in a direct manner. The mass media have taken a great interest in the project, and on all those occasions the older people in the area have been able to step forward to speak their mind and give their opinion of the project. They have also been natural actors at a number of national and international study visits in the course of the project.

The new knowledge generated within the project has been of the greatest importance for the municipality, the Swedish Road Administration and other interested parties. This knowledge could not have been gained without the design of the project, which involved the older people throughout the entire process. In prioritising measures, not least, it became obvious that neither the representatives of the municipality nor those of the Swedish Road Administration could have envisaged that it is actually the small details in the environment that are of crucial importance for older people’s accessibility and safety.