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Acceptance of the Long Cane by Persons Who Are Blind in South India

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Human beings both sense the immediate environment and navigate beyond the immediately perceptible environment to find their way (Golledge, Loomis, Klatzky, Flury, & Yang, 1991; Golledge, Klatzky, & Loomis, 1996; Blasch, Wiener, & Welsh, 1997). People who are visually impaired (that is, are blind or have low vision) often lack the information to bypass obstacles and other impediments to locomotion and usually have little information about existing landmarks. Efforts to assist them with wayfinding have been limited, to a large extent, to devices that help them avoid obstacles.

The long cane costs about U.S. $1.00 to $2.00 in India and is easily available. There is little information on

the acceptance of the long cane among persons who are visually impaired in India and any potential barriers to its use. Thus, we conducted a cross-sectional study to determine the acceptance of the long cane among persons who are blind in south India.

Method

The study adhered to the tenets of the Declaration of Helsinki. We recruited participants for the study from among those who presented to the Department of Low Vision and Vision Rehabilitation of the L.V. Prasad Eye Institute in Hyderabad, south India, which is the only center for low vision rehabilitation and training in the state of Andhra Pradesh.

We used a structured questionnaire to collect information on the use of the long cane from the participants who were defined as blind and were identified by the rehabilitation personnel as requiring a cane. Information on previous recommendations for cane use, the age at onset of blindness, current use of a cane, comfort level in using a cane, training in the use of a cane, and any stated impact of using a cane was ascertained. We considered the use of a cane at least 90% of the time for travel to be "extensive use" and less than 10% of the time to be "very little use." We also collected information on barriers to the acceptance and continued use of a cane from those who were not currently using a cane.

Results

We recruited 200 consecutive participants (who were defined as blind and as requiring a long cane) for the study during a four-month period from October to January 2004. The mean age of the participants was 39.4 ± 18.1 years (median: 36 years, range: 16-18 years). Of the 200 participants, 157 (78.5%) were men, 59 (29.5%) were illiterate, and 94 (47.0%) were unemployed (see Table 1). The mean reported monthly income was U.S. $190.90 ± $259.50 (median: U.S. $113.60, range: U.S. $3.40 to $1,818.20). The mean age at the onset of blindness was 27.5 ± 21.2 years (median: 25 years, range: birth to 79 years). Forty (20.1%) participants had visual fields subtending an angle less than 10 degrees.

Only 59 (29.5%; 95% CI: 23.1, 35.9) of the 200 participants had previously been recommended for training in the use of the long cane, and of these 59, 35 (59.3%; 95% CI: 46.4, 72.2) were currently using a cane for travel. The mean duration between the onset of blindness and the recommendation for such training was 8.5± 7.4 years (median: 9 years, range: within 1 year to 20 years) for those who were currently using a cane and 10.6 ± 11.5 years (median: 8.5 years, range: within 1 year to 52 years) for those who were not using a cane. Nineteen (32.2%) persons received the recommendations for training at special schools for students who are blind, 17 (28.8%) received them at hospitals, 14 (23.7%) received them at their homes,

and 9 received them from their friends. The majority (*n* = 39, 66.1%) received the recommendations from orientation and mobility (O&M) instructors.

Only 19 (32.8%) of the 59 participants who received recommendations for training in the use of the long cane received any formal training. All 19 were trained by O&M instructors, primarily at special schools for blind students (*n* = 14, 73.7%). The mean duration of training was 43.1 ± 45.3 days (median: 30 days, range: 3-180 days). Fifteen (78.9%) of the 19 persons who were trained to use a cane said they were satisfied with the training they received, and all 19 were currently using a cane for travel.

Fifteen (38.5%) of the remaining 39 participants for whom training in the use of a cane was recommended but did not receive such training were currently using a cane for travel. The current use of a cane was not significantly associated with the participants' sex, level of education, or occupation. There was no significant difference in the mean reported monthly income of those who were currently using a cane (mean monthly income: U.S. $141) and those who were not (mean monthly income: U.S. $125.50).

Twenty-six (67.6%) of the 39 participants who were currently using a cane stated that they felt safer using it, and 16 (41.0%) stated that using a cane made them feel more independent. The major barriers to the use of a cane for travel included social stigma (*n* = 89,

30.8%), help received from a sighted guide (*n* = 67, 23.2%), and the ability to manage with residual vision (*n* = 47, 16.3%) (see Table 2).

Discussion

The long cane is considered a low-cost device that can help people who are blind move around independently. One would assume that the use of a cane by people who are blind would be widespread in developing countries, given the low cost of canes and the potential they offer for independent travel. However, the availability of low-cost devices does not always translate into their actual and optimal use. We found that less than one-third (*n* = 59) of the participants who required a cane had ever been advised to use one. We also found that less than one-tenth of the participants who required a cane (*n* = 19) had been formally trained in their use and that less than one-fifth (*n* = 35) were currently using them.

The lack of such recommendations and of current patterns of usage is a matter of concern. It is not clear why training in the use of a cane was not recommended in the first instance to those who might have benefited from it. We do not believe that affordability and availability are issues, since long canes are widely available at affordable prices even in developing countries. We did not find any significant difference in the reported monthly income among those who were using a cane and those who were not. We

cannot comment on whether the failure to recommend training in the use of a cane suggests that health care professionals lack confidence in the potential utility and benefits of using a cane, since our study was not designed to explore this issue. The fact that the median duration from the onset of blindness to the receipt of recommendations for training in the use of a long cane was nearly 9 years may be attributed to the fact that blindness occurred at a young age when canes were not really required or to the possible late access to care.

The participants reported several barriers to the use of a cane. The main obstacle was the fear of stigmatization; the participants perceived that a cane drew unwarranted attention to their disability and limited their ability to integrate with sighted people. Furthermore, a significant number of participants did not perceive any additional benefits to using a cane compared to using whatever residual vision they had or to using a sighted guide. The elderly participants especially preferred to use a sighted guide, rather than a cane, because they thought it was normal for an elderly person to seek support during travel and hence to minimize attention to the disability. Reduced levels of physical activity, memory loss, the need for stronger physical support during walking, and the fear of falling were other reasons that prompted the preference of most of the elderly participants for using a sighted guide over a cane. The lack of advice and lack of training were also suggested as barriers to the use of a cane.

The results of our study suggest the need for more focused efforts to address the rehabilitation of persons who are blind in south India, especially since the participants who used a cane stated that using the cane did have benefits. More efforts must be made to sensitize health care professionals to the utility of canes and to train persons who require canes. A greater emphasis must given to counseling people who are blind and the wider community to increase acceptance of the disability and to reduce stigmatization. Such sensitization is essential if research on devising new navigation systems is to be of benefit to the community (Brabyn, 1985; Crandall, Gerry, & Alden, 1993; Fruchterman, 1996; Loomis, Golledge, Klatzky, Speigle, & Tietz, 1994; Makino, Ishii, & Nakashizuka, 1996; Makino, Ogata, & Ishii, 1992; Petrie et al., 1996).

References

Blasch, B. B., Wiener, W. R., & Welsh. R. L. (Eds.). (1997). *Foundations of orientation and mobility* (2nd ed.). New York: AFB Press.

Brabyn, J. A. (1985). A review of mobility aids and means of assessment. In D. H. Warren & E. R. Strelow (Eds.), *Electronic spatial sensing for the blind* (pp. 13-27). Boston: Martinus Nijhoff.

Crandall, W., Gerry, W., & Alden, A. (1993, June 12-17). *Remote signage and its implications to print-*

handicapped travelers. Paper presented at the annual conference of the Rehabilitation Engineering Society of North America, Las Vegas [Online]. Available: http://www.ski.org/Rehab/WCrandall/General/TRFPaper.htm

Fruchterman, J. (1996, March 25-28). *Talking maps and GPS systems.* Paper presented at the Rank Prize Funds Symposium on Technology to Assist the Blind and Visually Impaired, Grasmere, Cumbria, England.

Golledge, R. G., Klatzky, R. L., & Loomis, J. M. (1996). Cognitive mapping and way finding by adults without vision. In J. Portugali (Ed.), *The construction of cognitive maps* (pp. 215-246). Dordrecht, the Netherlands: Kluwer Academic.

Golledge, R. G., Loomis, J. M., Klatzky, R. L., Flury, A., & Yang, X. L. (1991). Designing a personal guidance system to aid navigation without sight: Progress on the GIS component. *International Journal of Geographic Information Systems, 5,* 373-395.

Loomis, J. M., Golledge, R. G., Klatzky, R. L., Speigle, J., & Tietz, J. (1994). Personal guidance system for the visually impaired. *Proceedings of the First Annual International ACM/SIGCAPH Conference on Assistive Technologies. Marina Del Rey, California, October 31-November 1, 1994* (pp. 85-90). New York: Association for Computer

Machinery.

Makino, H., Ishii, I., & Nakashizuka, M. (1996, October 31-November 3). Development of navigation system for the blind using a GPS and mobile phone connection. In *Proceedings of the 18th annual meeting of the IEEE EMBS, Amsterdam*. New York: Institute for Electrical and Electronics Engineers.

Makino, H., Ogata, M., & Ishii, I. (1992). *Basic study for a portable location information system for the blind using a global positioning system* (Technical Report MBE92-7, in Japanese). Tokyo: Institute of Electronics, Information, and Communication Engineers.

Petrie, H., Johnson, V., Strothotte, T., Raab, A., Fritz, S., & Michel, R. (1996). MoBic: Designing a travel aid for blind and elderly people. *Journal of Navigation, 49,* 45-52.

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