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Visually Impaired Older Adults and Home-Based Leisure Activities: The Effects of Person-Environment Congruence

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Abstract: This qualitative study explored the effect of person-environment congruence on participation in home-based leisure activities by two legally blind older adults who lived independently in the community. The results indicated that visual impairment increased the time spent in home-based leisure activities and that the participants used various proactive behaviors to engage in these activities.

Older adults who are visually impaired (that is, are blind or have low vision) may be particularly vulnerable to contingencies in the physical environment because both the aging process and reduced visual acuity may impair their ability to interact effectively with the physical environment (Wahl, 1994). According to a 1994–95 survey by the U. S. Bureau of the Census, approximately 5 million community-dwelling older adults in the United States have visual impairments, and 1 million of them have severe visual impairments, which means they are unable to see words and letters in regular print with their eyeglasses (American Foundation for the Blind,

2003).

Visual impairment challenges individuals' overall occupational performance or participation in life because it reflects their dynamic experience of engaging in daily occupations within their environment (Christiansen & Baum, 1997). In this case, occupational performance is the accomplishment of activity tasks that are related to activities of daily living (ADLs), including bathing, dressing, eating, functional and personal mobility, hygiene, and rest and relaxation (American Occupational Therapy Association, AOTA, 2002). Occupational performance also embodies everyday living activities, such as the care of others and pets, child rearing, communication, financial management, health and home management, meal preparation, education, work, play, leisure, and participation in social activities. Beyond self-care activities, the greater part of occupational performance for older adults is participation in leisure-related occupations; that is, engagement in activities that are meaningful, reflect cultural values, and provide structure for living. Occupations meet human needs for self-care management and participation in society (Crepeau, Cohn, & Schell, 2003).

Studies (Griffin & McKenna, 1998; Parker, 1996; Stanley & Freysinger, 1995) have suggested that leisure activities, especially involvement in social and home-based activities, may be increasingly important during the retirement years and may lead to greater

satisfaction with life (Kelly, Steinkamp, & Kelly, 1987). However, Heyl and Wahl (2001) noted that life satisfaction may decrease over time in persons who experience visual losses in later adulthood. Visually impaired older adults may find the physical settings of their homes too demanding to carry out meaningful leisure activities. Thus, adapting the environment so that it is congruent with an individual's visual capabilities and is supportive of continuing engagement in valued leisure activities may play an important role in the maintenance of well-being and quality of life, as well as of satisfaction with life, in the later years.

Review of the literature

Visual impairment is the third most common chronic condition, after arthritis and heart disease, among the elderly (Colenbrander & Fletcher, 1995). As of 1995, over 6 million people aged 65 and older had experienced irreversible vision loss that could not be corrected by medical or surgical intervention (Lighthouse International, 2003). Aging is associated with an increased risk of visual impairment: 17% of adults aged 65–74 and 26% of those aged 75 and older have some form of visual impairment (Lighthouse International, 2003).

Retirement results in a fundamental change in the occupational activity pattern of the individual, since the responsibilities of work are replaced by a greater

amount of free time (Jonsson, Kielhofner, & Borell, 1996). Leisure activities may gain importance in the lives of elderly individuals as a mechanism for coping with discretionary time or as a substitute for lost work activities (Havighurst, Neugarten, & Tobin, 1968; Nystrom, 1974). Research has suggested that participation in leisure activities contributes to a sense of well-being (Tinsley, Barret, & Kass, 1977) and life satisfaction (Kinney & Coyle, 1992; Parker, 1996) during the retirement years.

Wahl, Schilling, Oswald, and Heyl (1999) investigated the effects of vision loss on leisure activities by comparing visually impaired older adults with those who were unimpaired and those who were mobility impaired. They discovered that older adults with visual impairments participated significantly less in leisure activities than did those without visual impairments. This reduction in leisure participation was comparable to that observed among elderly people with mobility impairments.

Heyl and Wahl (2001) compared the behavioral and emotional adaptation of visually impaired and sighted elderly people and found that age-related visual impairment was associated with other forms of significant losses that increased over a six-year period, including a decline in future orientation and life satisfaction. These findings suggest that participation in leisure activities was significantly less in the visually impaired group. Heyl and Wahl concluded that

visual impairments negatively affect the course and outcome of aging and that this long-term risk makes it crucial to provide psychosocial intervention and rehabilitation at the earliest possible time to impede dependence and decreased autonomy. Similarly, Heinemann, Colorez, Frank, and Taylor (1988) reported that, among a sample of 63 community-dwelling, visually impaired older adults, participation in leisure activities declined significantly both in active crafts and everyday activities (for example, writing, sewing, and collecting). Vision loss appeared to have a lesser effect on leisure activities in which people engaged less frequently before they lost their vision, such as traveling and participatory sports.

In recent years, advocates for people with disabilities have suggested that older adults' difficulty in functioning effectively in their home environments can be linked to "a gap between personal capability and environmental demand" (Verbrugge & Jette, 1994, p. 1). This perspective represents a transactional view of person-environment interaction that assumes that there is a dynamic interdependence between an individual and his or her environment. Law et al. (1996) argued that the quality of this experience is important because the outcome of this interaction, occupational performance, influences the individual's view of himself or herself and sense of well-being. According to Law et al. (1996; see also Law et al., 1997), occupational performance depends on the congruence among the person, the environment, and the task. The

closer the fit among the interacting components, the better the occupational performance.

Lawton (1998, p. 4), an environmental psychologist, stated that "the less competent individuals are controlled by, and the more competent are in control of, the environment." His ecological model of aging includes two hypotheses—environmental docility and environmental proactivity—with regard to person-environment interaction. The environmental docility hypothesis states that less competent persons are more vulnerable to the effects of the environment than are those who are more competent (see Lawton & Simon, 1968). Because elderly people are active participants in the person-environment interaction, they are therefore able to avert an increased susceptibility to environmental forces by proactively attempting to change themselves or by shaping the environment to match their capabilities (Lawton, 1985; 1989). The proactivity hypothesis predicts that the higher the competence of the person, the better the person is able to use the resources in the environment to meet his or her needs (Lawton, 1989).

Empirical research on the impact of the physical environment on the functioning of visually impaired individuals is sparse. Only one study (Wahl, Oswald, & Zimprich, 1999) examined the effects of the physical environment on the daily activities of visually impaired older adults. That study explored how older adults' home environments influence their ability to perform

basic and instrumental ADLs. Basic activities of daily living (BADL) are the ADL tasks that pertain to self-care and management, mobility, eating and feeding, and sleep and rest (Christiansen & Baum, 1997; AOTA, 2002). Instrumental activities of daily living (IADLs) are the routine activities that are necessary for independent living, such as providing care, communication, and meals and financial, health, and home management (Christiansen & Baum, 1997; AOTA, 2002).

Wahl, Oswald, and Zimprich (1999) compared a sample of 84 community-residing older adults with severe visual impairments (42 who were legally blind and 42 who were functionally blind) with a control group of 42 sighted older adults. They found that low person-environment congruence had no significant effect on the sighted participants' BADLs, but had a significant, negative effect on the visually impaired participants' ability to perform IADLs. Wahl, Oswald, and Zimprich also reported that the participants, both visually impaired and sighted, actively shaped their physical environments. The visually impaired participants who had adapted their living environments to accommodate their visual impairments performed significantly better on IADLs than did those who lived in less-supportive environments. These findings lend support to Lawton's environmental docility and proactivity hypotheses.

Despite the importance of person-environment

interaction in the daily lives of elderly individuals, environmental factors have received relatively little attention in empirical research (Diehl, 1998; Wahl, Oswald, & Zimprich, 1999). Furthermore, few studies have explored the effect of visual impairment on leisure activities, considering the prevalence of vision loss in the adult population and the importance of leisure activities during the retirement years. Thus, we conducted a case study to explore the effect of person-environment congruence on the participation in home-based leisure activities of older adults with visual impairments who lived independently in the community. This qualitative study explored the following research questions:

1. Will older adults with severe visual impairments shift the focus of their leisure interests from community-based activities to home-based activities as their ability to travel independently in the community declines?

2. Will visually impaired older adults' proactive behaviors include adaptations that enable them to engage in home-based leisure activities?

3. Will there be a difference in person-environment congruence regarding leisure activities between two elderly individuals who have similar visual impairments but whose age, marital status, and health differ, as the environmental docility hypothesis suggests? If so, will the higher person-environment congruence translate into higher

satisfaction with leisure activities?

Method

Participants

Purposive or judgment sampling (Gay & Airasian, 2000) was used to select cases that were believed to be representative (Creswell, 1998; Gay & Airasian, 2000) of older adults with late-onset visual impairments who were retired and hence would have a greater opportunity to participate in leisure activities. Telephone screening excluded individuals who were younger than age 65, since 65 is generally the normal age of retirement and hence a time for leisure. In addition, individuals who had a vision loss that had occurred before age 60 were excluded because the study sought to examine the leisure occupations and participation of persons whose visual impairments began in older adulthood, since research has indicated that vision loss in later life has negative consequences for competence (occupational performance) and life satisfaction (Wahl, Heyl, Oswald, & Winkler, 1998; Wahl & Vera, 2001). Prospective participants were also excluded if they did not reside in the community or had cognitive impairments, because these conditions place restraints on individuals' opportunity to engage independently in leisure activities. Thus, the sample consisted of two legally blind older adults who were diagnosed with age-related macular degeneration (ARMD)—Harold and Caroline (both names are

pseudonyms). These participants were recruited from low vision support groups and senior centers in the Baltimore area. The demographics of the participants are shown in Table 1.

Instruments

Various instruments were used to focus the data collection. The Brief Cognitive Rating Scale (BCRS), developed by Reisberg and Ferris (1988), was used to assess the participants' cognitive capabilities. The BCRS has been demonstrated to be sensitive to primary degenerative dementia and age-associated memory impairment and does not include items that require intact visual functioning (Reisberg & Ferris, 1988).

The Enabler (Iwarsson, 1997) is a norm-based environmental assessment instrument that was developed to assess the accessibility of housing and its close surroundings. It provides a detailed observation of the accessibility of the home by juxtaposing environmental barriers against the functional abilities of the individual. In this study, only items that were pertinent to the indoor environment (100 items) were used.

A structured questionnaire was used to gather information on the participants' engagement in leisure activities and their satisfaction with the activities. The questionnaire listed 40 activities that were grouped into

six activity categories on the basis of previous studies (Nystrom, 1974; Parker, 1996; Stanley & Freysinger, 1995). These categories included participation in home activities, hobbies/crafts, spectatorship/travel, informal social activities, voluntary and formal organizations, and sports.

A checklist for proactive behaviors was developed by expanding the compensation categories suggested by Wahl, Oswald, and Zimprich (1999). The checklist included strategies to modify the home environment (for example, the use of optical devices, increasing illumination), to alter the task (for example, simplifying), and person-related adaptations (for example, the use of latent skills).

Procedure

The data were collected during seven face-to-face interviews in the participants' homes over an eight-week period. Each home visit lasted 1½ to 2 hours. The BCRS (Reisberg & Ferris, 1988) was administered before the participants were included in the study to rule out cognitive and memory deficits.

Structured and partially structured interviews were used to gather information on the participants' demographic characteristics, participation in leisure activities, and satisfaction with their leisure activities. The proactive behaviors checklist guided interviews and observations about the compensation strategies the

participants used to decrease the discrepancy between their visual capabilities and the environmental demands.

The Enabler (Iwarsson, 1997) was used to assess the accessibility of the housing environment. Photographs were taken to document the existing conditions in the living environment and to facilitate the identification of environmental modifications. In addition, the participants' perceptions about the accessibility of the home environment were gathered through partially structured interviews. All the interviews were audiotaped and later transcribed verbatim.

Both qualitative and quantitative data were used to create a rich description of the cases and settings. Data reduction was performed by identifying content that was related to participation in leisure activities. It was accomplished by writing analytical memos (Miles & Huberman, 1994) and by using NUDIST, a qualitative data analysis program, to organize the leisure content into categories (Richards & Richards, 1994). Next, these data were analyzed for repeated content to determine the themes of participation in leisure activities.

Internal validity was addressed by adopting two verification procedures: triangulation of information and member checking. Triangulation of the data (Stake, 1995) was accomplished by collecting data from multiple sources (observations, interviews, and

reviews of records). Member checking was performed by soliciting the participants' feedback on the findings in different phases of the study (Creswell, 1998). External validity was addressed by providing rich, thick descriptions of the cases that allow readers to determine the transferability of the findings (Erlandson, Harris, Skipper, & Allen, 1993). Passages from 12 interviews that included some aspect of leisure were analyzed by using qualitative data analysis procedures. The passages were explored to determine the participants' leisure focus.

Results

Vision loss and participation in leisure activities

Both Caroline and Harold described themselves as active individuals before they became visually impaired. Harold's leisure interests revolved around model airplanes, and he described his daily routine before his vision loss: "I used to disappear almost all day to fly model airplanes. I would be with the guys in the club flying the airplanes.... When you fly airplanes you have a lot of fun." Caroline spent her time singing with a 50-member senior group that rehearsed and performed musicals. She described longingly her 18 years with the group:

> I was so busy when I was with the Retiring Stars. We not only had the rehearsals twice a week, but we were going to various organizations doing shows.... Yeah, I wasn't lonely. I was too busy to be lonely because I was gone

practically every evening.

Declining vision forced both participants to give up their most valued leisure interests. Caroline gave up her membership in the music group because her visual impairment limited her ability to perform on stage. Similarly, declining sight made it impossible for Harold to build and fly his motorized model airplanes.

Both participants described the loss of their ability to drive as the end of spontaneity and independence in freely choosing and participating in community-based activities. The importance of these activities in the participants' lives was highlighted by the effort they had made to identify alternative transportation to revive their busy leisure schedules. Caroline had constructed a complex network of relatives, friends, taxis, and low-cost transportation for elderly and disabled persons to gain access to community-based activities. Harold had completed orientation and mobility training soon after the onset of his vision loss to learn the necessary skills to travel independently.

Caroline attended the local senior center twice a week, participating in bingo, a discussion group on current issues, an exercise group, and ceramics. She also sang in her church choir, bowled, and led a Sunday school class. Harold got a ride from his wife to the senior center three times a week to participate in an exercise group, woodcarving, and ceramics. He also took public transportation to the city to learn braille and to attend a

support group for veterans with visual impairments.

Both participants reported that their vision loss and difficulty finding transportation had increased the time that they spent at home. Regardless of her complaints of feeling bored and having "time on her hands" at home, Caroline had not developed new home-centered leisure interests since she had lost her vision. Listening to Talking Books and CDs, watching videos and television, and preparing the Sunday school lessons were the only leisure activities that she frequently engaged in at home. Caroline reported that participation in these activities, particularly listening to Talking Books and watching television, had increased since she had become visually impaired. In contrast, Harold had expanded his leisure repertoire and replaced his abandoned home-based leisure activities, gardening and woodworking, with new leisure interests. He spent time at home studying braille, making macramé chairs, playing card games with his wife and friends, taking walks around his neighborhood, learning to use a computer, and listening to books on tape.

Proactive behaviors and leisure at home

Qualitative data analysis procedures were used to categorize the participants' proactive behaviors with regard to home-based leisure activities. Four observations and 12 interviews yielded data for organizing the participants' compensation strategies

into categories.

The participants used various proactive behaviors to maintain their participation in home-based leisure activities. Caroline relied almost exclusively on various environmental modifications to engage in leisure activities, whereas Harold preferred to adapt the leisure activities to his limitations. Table 2 shows the categories of proactive behaviors that they used to decrease the discrepancy between their abilities and the demands of the environment.

The use of optical and nonoptical devices, maintaining order and structure in the home environment, and strategic organization were the environmental modifications that both participants most commonly used. For example, Caroline relied on a pair of telescopic spectacles to watch videos that she had collected over the years. Both participants emphasized the importance of order and structure in their homes. As Caroline put it, "There is just nothing else to do; you have to put them back because they have no other place to go." Similarly, strategic organization was essential to locate items in the environment. For instance, Caroline's granddaughter had organized Caroline's 70 videos in alphabetical order, which helped Caroline to find a particular movie from her collection.

Both Caroline and Harold adapted tasks by asking for help from others and by finding alternative ways to

perform leisure activities. For example, Caroline relied on her daughter's weekly visits to continue her 30-year volunteer career as a Sunday school leader, and both she and Harold used Talking Books as an alternative way to continue to read for pleasure. In addition, Harold compensated for his visual impairment by simplifying tasks and by changing the customary ways in which he participated in leisure activities.

In this study, only two person-related adaptations were identified. Harold had increased his sense of independence by completing orientation and mobility training and traveled independently around his neighborhood with the help of a long cane. Caroline, at age 85, had trained her memory and depended on it to deliver her lengthy Sunday school lessons.

Person-environment congruence

The degree of person-environment congruence was examined by analyzing data from four observations and six interviews. The number of supportive environmental features were tabulated and compared between the participants. The presence of environmental barriers was analyzed by using the Enabler assessment tool. Passages that indicated some aspect of the participants' satisfaction with their living environment were incorporated into the analysis by using qualitative data analysis procedures.

Although Harold had spent five weeks in intensive

visual rehabilitation that included information on home modifications and Caroline's contact with visual rehabilitation was limited to one-hour visits by a low vision specialist, the analysis indicated that Caroline's one-bedroom apartment included more supportive features (52 environmental modifications) than did Harold's three-story house (35 modifications). Some of the differences between the participants were due to home modifications that were done to accommodate Caroline's diabetic neuropathy (12 modifications). Caroline's daughter had, for example, placed her living room furniture so that she could always maintain her balance while walking around the apartment. Most of the difference between Caroline's and Harold's person-environment congruence, however, reflected Harold's attitude that modifications of the home were unnecessary. As he put it, "Yeah, they told us in the rehab to remove the furniture along the walls, you know. I don't need that. Some people can get by the way it is; others need to move them away."

Furthermore, the analysis indicated that there was a difference between Harold's and Caroline's environmental modifications in regard to the proportion of changes that were done to enable the participants to engage in home-based leisure interests. The analysis indicated that 42% (21 of 52) of all the home modifications in Caroline's apartment were directly related to leisure activities, whereas 71% (25 of 35) of all the home modifications in Harold's house were adaptations that improved his ability to perform

leisure activities.

Both participants relied on various optical and nonoptical devices, such as magnifying glasses, talking clocks, and large-faced wrist watches. Both had marked their kitchen appliances with tactile cues and used strategic organization to locate items. Caroline's home modifications also included such adaptations as the elimination of clutter and obstacles from circular paths throughout the home and the use of contrasting colors to enable her to find frequently used objects (for example, black dishes in a white cupboard). Harold, instead, depended heavily on the familiarity of his home: "I know where everything is, and I know how to get around."

A comparison of the environmental barriers of the participants' home environments indicated that Harold's home had more accessibility problems than did Caroline's. Insufficient maneuvering areas in relation to movable furniture, poor general illumination, necessary dwelling functions located on different floors, and broken dials on the kitchen stove were examples of environmental barriers that affected Harold's daily functioning. A walk-though home assessment in Caroline's apartment indicated that inconsistent lighting levels impaired her visual functioning and that her mobility problems were exacerbated by the lack of a place to sit while showering and the lack of a shower stall.

Both participants expressed satisfaction with their home environments and did not anticipate making any changes in the future. Caroline said: "There is no way how you could move the furniture, I mean, it's convenient where it is. It's comfortable."

Satisfaction with leisure activities

Passages from 10 interviews that included some aspect of satisfaction with leisure activities were categorized by using qualitative data analysis procedures to determine the participants' perceptions of the quality of their participation.

Both Harold and Caroline expressed the belief that continued involvement in leisure activities was central to their sense of well-being. For Harold, leisure activities represented a continuation of his role as a productive member of the society: "By the end of the day, I want to feel that I produced something. I don't care if it's just making tiddledywinks.... Otherwise, you are just going to vegetate. Hey, and that's not good for you." For Caroline, a widow, her community-based leisure activities gave her the opportunity to maintain social relationships with others: "I guess there is nothing else that I'd rather do except be around people."

Both participants acknowledged that since they had become visually impaired, their satisfaction with their leisure activities had declined. For example, Harold

stated: "Oh, it's alright. It's passable. It's not terrific, you know. But I like doing different things." This decline, however, appeared to be less dramatic for Harold, who emphasized the importance of finding alternatives, both home- and community-based activities, to replace his abandoned leisure interests. As he put it, "I had hobbies that I enjoyed, so I had to do different hobbies after my eyes went bad and get enjoyment from them. So, that's what I did. I found something to do." In contrast, Caroline was unable to find satisfactory alternatives and complained, "My life is blah, even if I go to the choir or Susan and I ready my Sunday school lesson for me. It's just, there is no spark in it anymore." For Caroline, her home-based leisure activities were not enough to fill the void left by abandoned social activities. When asked what would happen if she could not attend the senior center groups, she answered: "I guess I would just hibernate. I don't know what I would do. I guess I would go crazy. I guess I would do like some of my friends do and sit all day in front of the television set."

Discussion

The results of this study suggest that although vision loss caused an initial decline in their participation in leisure activities, Caroline and Harold were not rendered helpless victims of their disability but found alternatives to replace lost leisure activities. Both Harold and Caroline found alternative transportation to maintain participation in valued community-based

leisure activities instead of shifting their focus exclusively to home-centered activities. These findings support Rowe and Kahn's (1999) notion that engagement with life—that is, staying involved and socially connected—contributes to a satisfaction with life and successful aging. The importance of continuing to participate in social activities seemed to reflect the prominence of these activities in their lives before the participants became visually impaired. Participation in informal social activities appeared to give the participants a sense of accomplishment (Harold) and a context for maintaining social relationships (Caroline). Consequently, engagement in these activities was a high priority even after vision loss made it difficult for both participants to travel independently.

Although their visual impairments increased the time that both participants spent in home-based activities, the participation in leisure interests appeared mainly to fill their increased discretionary time. The findings support Kelly's (1983) "core and balance" model of activity patterns. Kelly proposed that adults have a set of "core" leisure interests that form an integral part of family living and persists through the life course. The findings that Harold and Caroline adapted their home-based activities to match their physical capabilities is congruent with Kelly's argument that the "balance" set of activities is more likely to change with changing abilities, opportunities, and life circumstances.

The finding that both participants engaged in various proactive behaviors to maintain their participation in home-based leisure activities emphasizes the importance of these activities in the lives of elderly individuals. It also supports the notion that individuals actively shape their environments, tasks, or themselves to decrease the discrepancy between their capabilities and the demands of their environment (Carlson, Clark, & Young, 1998; Lawton, 1985; 1989). The identified categories of proactive behaviors were similar to those that Wahl, Oswald, and Zimprich (1999) reported in their study of compensation modes in BADLs and IADLs.

However, the participants seemed to differ in their choice of activities and proactive behaviors. Caroline spent her time at home in sedentary leisure activities, watching television and listening to CDs, whereas Harold preferred activities that required a considerable investment of effort, such as taking walks in the neighborhood or making macramé chairs. Harold also used a wider variety of proactive behaviors than did Caroline to compensate for his visual impairment and to ensure his participation in leisure activities. Consequently, Harold had several leisure possibilities available in his home environment, while Caroline was limited primarily because of her narrower interests and her mobility impairment and lack of knowledge of appropriate, possible leisure activities.

The difference between Harold and Caroline reflected

not only the difference in their ages and health statuses, but also Harold's access to intensive rehabilitation and support services from the Veteran's Administration. The findings support Lawton's (1989) proactivity hypothesis, which argues that the higher a person's competence, the better able the person is to use the resources in the environment to meet his or her needs.

Although Caroline's home environment included considerably more home modifications to accommodate her physical and visual limitations, it was Harold who was in better control of his leisure environment and who engaged in a wider variety of activities. Although home modifications and the elimination of environmental barriers improve person-environment congruence, they do not necessarily increase participation in leisure activities. This finding highlights the importance of activity-specific supportive features that improve the ability to engage in leisure activities. It is plausible that, because Harold lived with a spouse who was available to assist in daily activities, he could focus on environmental modifications that improved his participation in leisure activities. Caroline's environmental adaptations, instead, appeared to reflect her preoccupation with coping with the effects of age and disabilities and her neglect of the importance of leisure activities in the ongoing round of daily life. The results support the conclusion that age, health, and marital status contributed to Caroline's higher vulnerability to environmental effects in regard to leisure activities, as

the environmental docility hypothesis suggests (Lawton & Simon, 1968).

It is interesting that both participants expressed satisfaction with their present residences and an aversion to making additional home modifications. Harold was willing to endure several environmental barriers that made his daily living cumbersome, and Caroline did not pursue home modifications that would have expanded her leisure options. This finding parallels Filion, Wister, and Coblentz's (1992) finding that people who are elderly tend not to seek or prepare for environmental change. Filion et al. suggested that psychological adaptation, including deep attachment to one's home, an aversion to change, and a self-reliant attitude, account for the gradual acclimatization to the often less-than-optimal physical environment. Because both Harold and Caroline had modified their environments as a response to their visual impairments, it could be speculated that there appears to be a tipping point that negates psychological adaptation. This hypothesis, however, warrants further study.

The data revealed a difference between the participants' satisfaction with leisure activities that appeared to reflect their ability to identify satisfactory leisure interests and to create a supportive physical environment for their home-based leisure activities. In other words, higher person-environment congruence in leisure activities translated into higher satisfaction with leisure activities. This connection was not

straightforward, but seemed to be mediated by the different meanings that the participants bestowed on leisure activities.

For Harold, leisure activities represented a continuation of his role as a productive member of the society, whereas Caroline associated leisure activities with maintaining important social relationships with others. By spending hours studying and practicing braille or making macramé chairs, Harold was able to occupy his time productively at home in a way that fitted his expectations. For widowed Caroline, her solitary, home-based activities did not give her the opportunity that she craved to escape the boredom and loneliness of her home. This finding underscores the importance of continued participation in valued, self-selected leisure activities in the lives of elderly individuals.

It is important to note that the participants were not selected randomly, but were recruited from a pool of elderly individuals who participated in various community-based activities (support groups and senior centers). This way of recruiting participants contributed to the tendency to select individuals who exhibited high activity levels; thus, the participants represent only a subset of the population of elderly visually impaired adults. Second, the use of qualitative observation and interview techniques to collect and interpret the data introduced subjectivity into the research process. Consequently, the results are subject to other interpretations than those presented here.

Further research is needed to explore the ways in which the psychological strategies that older adults use to adjust to their visual impairments (Lindö & Nordholm, 1999) influence the use of proactive behaviors. The findings of this study suggest that there is a connection between independence and the increased use of proactive behaviors, as well as between helplessness and environmental docility. The reasons why older adults readily accept the help of various optical and nonoptical devices but display an aversion to home modifications also warrants further exploration.

Implications for practice

This study indicated that leisure activities, especially involvement in social and home-based activities, contributed to the sense of well-being of the visually impaired elderly participants. The implication for service providers is that visually impaired older adults greatly benefit from instruction in leisure activities, as well as other ADLs. Since those who are older and in poorer health are particularly vulnerable to the effects of the physical environment, visual rehabilitation programs should include a comprehensive evaluation of the home environment. Although home modifications increase older adults' independence in general, only modifications that target leisure activities are successful in enhancing visually impaired older adults' ability to engage in home-based leisure

activities. Because some older adults display a resistance to home alterations, suggestions about task- and person-related adaptations may suffice to improve their selection and performance of leisure activities. Finally, only interventions that are client centered and recognize the uniqueness of older adults' leisure pursuits are successful in identifying valued activities and in promoting participation in these activities.

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