

## Environment and Blindness situation in Iran

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**Objectives:** The purpose of this study is to describe the experiences of adults with acquired blindness while performing the daily activities of normal life and to investigate the role of environmental factors in this process.

**Method:** A qualitative phenomenological method has been designed for the study. A sample of 22 adults with acquired blindness who were blind for more than 5 years of life were purposefully selected and semi-structured in-depth interviews were conducted with them. The interviews were transcribed verbatim, coded and analyzed using van Manen's method.

**Results:** The five clustered themes that emerged from the interviews included: 1. Products and technology - discusses the benefits and drawbacks of using advanced technology to promote independence 2. Physical environment - "The streets are like an obstacle course" 3. Support and relationships - refers to the assistance that blind people receive from family, friends, and society 4. Attitudes - includes family and social attitudes toward blind people 5. Services and policies - social security, supportive acts, economic factors, educational problems and providing services.

**Conclusion:** Findings identify how the daily living activities of blind people are affected by environmental factors and what those factors are. The results will enable occupational therapists and other health care professionals who are involved with blind people to become more competent during assessment, counseling, teaching, giving support, or other interventions as needed to assist blind people. Recommendations for further research include more studies of this population. This would facilitate long-term goals in the care.

**Key Words:** blindness; activities of daily living; environment

Submitted: 07 Feb 2010

Accepted: 02 March 2010

### Introduction

Vision, for many people, is perhaps the most important sense of all which they rely on to function in daily life. Impaired vision therefore makes many daily tasks, such as driving, reading the newspaper, and navigating one's environment difficult or impossible. Blindness can have a negative impact on the quality of life by reducing functional ability and independency. Blindness can also substantially increase the risk for falls and injuries leading to disability and placement into institutional care.

The psychosocial and health consequences of conditions that lead to acquired blindness are broad and include impaired activities of daily living, social isolation, cognitive impairment, impaired functional status and functional decline, increased dependency

on others, increased risk of motor vehicle crashes, falls and fractures, poor self-rated health and depression, higher probability of concentration problems during reading and entertainment, losing interest and enjoyment in their activities, feeling fatigue, irritable, sad, and tearful, having less hope for the future, and wishing for death (1,2). Blind people experience frequent communication difficulties. The problems of adjusting to sensory loss, depression, anxiety, lethargy and social dissatisfaction are cited as factors that affect physical and mental well-being of blind people (3). A radical change in life-style includes loss of employment, and reduced self-sufficiency, and self-esteem (4).

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Blindness has a considerable impact on a person's ability to function in daily life and, therefore, is a significant cause of disability (5). Blindness has a substantial impact on the quality of life compared with other chronic conditions, spoiling the quality of life more than diabetes type II, coronary syndrome, and hearing impairments; but less than stroke, multiple sclerosis, chronic fatigue syndrome, major depressive disorder, and severe mental illness (6). When people with blindness confront challenges related to education, employment, mobility, and socialization, psychosocial development, use of assistive technology, and mental health, may manifest as denial, anger, fear, or depression. It has been reported that it could be helpful for presence of early responses to disability may manifest the role models, social supports, and a positive doctor-patient relationship may influence adjustment (7).

Blindness is known to be one of the most severe disabilities to affect an individual, his or her familial, and society relations. It is emphasized that blindness is in association with high costs such as using different services, house modification, new equipment, the need to move and using assistive aids. The mean cost per person with blindness per year was \$11,896 (US dollars) in 1990 in the United States and totaled \$4 billion (US dollars) (8).

Restoring and maintaining the ability of blind people to function independently through the use of specific interventions is an intricate process that calls for the collaboration of various health care professionals. Occupational therapists are essential members of the multidisciplinary rehabilitation team providing such interventions (9).

Literature review identified qualitative and quantitative studies exploring the consequences of blindness. The ability to perform certain household tasks can be compromised. Blind people have reported unmet needs in shopping, cooking and housekeeping (10). One American study reports that older blind people are 1.37 times more likely to have trouble with activities of daily living (11). Many studies have examined the effects of blindness on performing activities of daily living (12,13). The findings of a study on blind people's experiences of mobility showed that participants experienced a severely limited range of mobility. This limitation influenced their occupational space and their independence. The impact of their mobility problems also showed an evident shift in activities of daily living (ADL). They attended less social activities and became more dependent on assistance. The

findings showed that the consequences of blindness were often misunderstood by others; the tension of being dependent and the inability of facial recognition as a barrier to social life were common experiences (14). In a study where the impact of blindness on the experience of food and eating was investigated, findings showed that participants experienced blindness-related obstacles when shopping for food, preparing food, and eating in restaurants. Inaccessible materials and environments left participants with a diet lacking in variety and limited access to physical activity. Some participants were overweight or obese, a finding that may be related to limited physical activity and higher-than-average restaurant use (15). Another researcher suggested that tasks which involve senses other than sight do not generally pose themselves as obstacles for blind people. Tasks, which only involve sight, such as reading, tend to pose as large obstacles (16). Studies of people living with blindness independently are limited. An area that is lacking in these studies is a description of how blind people function in their daily life.

The incidence of blindness in developing countries is more significant and the challenges associated with it will be more than developed countries. Therefore, blind-related problems, difficulties and needs in each society are relevant to economical, cultural, social and political status of that society. Thus, the current situation in each society, authorities should search for suitable solutions to provide services to this group of people. On the other hand, a blind person, has the right to a proper life and welfare. In Iran, only a few quantitative researches have described the quality of life of blind people (17). No phenomenological study, however, is reported that examined the experience of blind people with performing their activities. Accordingly, these issues should be investigated in our country and this phenomenological study of the experience of blind people may be a valuable addition. This study helps identify how people's lives are affected by blindness. This study was conducted to enable occupational therapists to become more competent during assessment, counseling, teaching, giving support, or other interventions as needed to assist blind people.

### **Materials and Methods**

Qualitative research examines life experiences (i.e., the lived experience) in an effort to understand and give them meaning. This usually is done by

systematically collecting and analyzing narrative materials using methods that ensure credibility of both the data and the results. Phenomenology is one of qualitative research methods that examines the lived experiences of humans. Phenomenological researchers hope to gain understanding of the essential "truths" (i.e., essences) of the lived experience (18).

Phenomenology was used because it is a research and philosophical method that attempts to describe and understand life experiences (19). The blind people described their experiences and the meanings they attached to these situations.

The sample included 21 adults with acquired blindness who had been blind for more than 5 years. The participants were at least 22 years of age. Participants were recruited through two low vision and blindness centers: Asaye Sefid Center in Tehran and Jalilian Center in Mashhad, both serving a large number of clients reflecting diversity in culture, socioeconomic status and nature of residence (urban, rural, suburban). The sample was a convenience one and the snowball approach to sampling was adopted (20). Each respondent was asked to recommend to the researcher another blind person who might be able to articulate their experiences about doing activities of daily living. Sample size was not predetermined; participants were recruited until the interview themes were repetitious and no new themes emerged. It was felt that 21 respondents should be able to supply varied and detailed accounts for the purposes of the study. The participants were willing to share their experience of doing their activities of daily living without using their eyes. Prior to data collection, all institutional approvals and informed consents were obtained.

All participants were interviewed in-depth by the researcher. The interviews took place in the blind centers. They were performed in private with just the researcher and the participant. Each participant was instructed to share his/her experiences regarding how he/she performs his/her activities of daily living. There was no time limit and the participants were encouraged to talk until they had nothing more to say. They were aware that their responses were confidential and would not be relayed to the staff of the blind centre and they were told that their participation was voluntary.

All interviews were recorded with the permission of the blind people being interviewed. Immediately following the interview, each participant was asked to complete a demographic data sheet. A profile of

each participant emerged from the demographic data sheet (see Table 1). After the interviews the recordings were transcribed verbatim into computer files. Care was taken by the researcher to assure the respondents that they would not be identifiable in any subsequent report. Once the final research report was written, the tapes from the interviews were destroyed.

Five category headings were generated from the data and under these all of the data was accounted for. Three independent researchers were asked to verify the accuracy of the category system and after discussion with them; minor modifications were made to it. In this study, the researcher also incorporated a number of strategies to address traditional qualitative methodological criteria for credibility, including triangulation of method, member checks, achievement of saturation in data collection, and affirmation of the study's rigor by an expert external auditor (21). In the phenomenology literature, a category system is said to have 'emerged' from the data. Other commentators have noted that the end it is always the researcher who finds and generates that system.

Data analysis was accomplished using van Manen (22) six steps hermeneutic phenomenological method. Bracketing of the investigator's knowledge, values, and preconceptions were also used.

Van Manen's phenomenological procedural steps included:

- (1) turning to a phenomenon which seriously interests us and commits us to the world;
- (2) investigating experience as we live it rather than as we conceptualize it;
- (3) reflecting on the essential themes which characterize the phenomenon;
- (4) describing the phenomenon through the art of writing and rewriting;
- (5) manipulating a strong and oriented pedagogical relation to the phenomenon;
- (6) balancing the research context by considering parts and whole.

No additional information was obtained and no changes needed to be made so the van Manen procedure was complete.

## Results

The five clustered themes that emerged from the interviews included:

1. Products and Technology
2. Physical Environment
3. Support and Relationship

4. Attitudes
5. Services and Policies.

These themes are presented with excerpts from some of the blind people's transcripts. A professional translator was used to translate the transcripts into English.

### Products and Technology

Assistive technology is an all-encompassing term used to refer to any device which assists people with disability, or elderly in performing activities of daily living. Assistive technology may include a medical device such as a cane or a technical product of more significance, such as hand controls in a motor vehicle. Loss of vision affects each person in unique ways and presents many challenges. For example, the use of written texts or finding ones way can be very difficult for blind person. The new generation of assistive aids have the possibility of addressing a broad range of physical issues through technological solutions. Using assistive aids could help blind people to retain some independence and dignity in daily living.

*"... there is a software named JAWS, which can read the name of icons on the computer which sighted people can see. I use the English version but there is also Persian version .It enable us to work with the computer independently..."(19)*

*"...I have installed TAX (a mobile text reader software) on my cell phone, so I can easily find the file of books which I have saved on my phone and listen to my favorite book or check my messages..."(19)*

*"... the Perkins Braille writing machine, Braille calendar, sport equipments for blind people such as chess are available ..." (4)*

*"... there are some needles for blind people which has a slot that make it easier to thread the needle ..." (20)*

On the other hand, lack of accessibility and being relatively expensive, were the problems most participants mentioned:

*"...there are a few assistive aids in Iran. Technology for the blind in our country is very weak. Blind people tend to use them, but these devices are expensive and the economic status of blind people is not favorable due to employment issues and expensiveness ..." (7)*

Lack of these aids is very tangible that most participants offered some suggestion about the aids they need:

*"... there is a small device which placed on the cup's edge and whistle when the cup is full enough ..." (10)*

*"... there are some canes which make a vibration when there is a different level on the course, but we do not have such canes ..." (12)*

*"... there is a mouse-shape device that can read the english labels but there is not in Iran ..." (9)*

### Physical Environment

To a blind individual the physical world presents many challenges. For a person with blindness, finding ones way through a complex environment is fraught with dangers. The perception of difficulty, however, can mean that many blind individuals are fearful or uncomfortable about independent mobility or travel. In this context, it becomes necessary to discover exactly what environments, environmental factors or items constitute a 'perception of difficulty' in the individual's mental landscape and may trigger a negative response before they interact with the physical environment. It seems that walking in public areas are difficult because of some obstacles in environment:

*"... I requested the municipality to fill up the holes in the pavements and to consider our conditions ..." (11)*

*"... we have many problems in subway passages because they are very confusing. We can't find the right direction even if passing that passage several times. We don't have much confidence to travel independently and find our way..." (20)*

*"... I don't like to walk on pavements because they are uneven and some areas have slope or some steps. The pavements are not standard. ..." (12)*

Sometimes these barriers cause fear to travel independently and decrease the confidence in blind people:

*"... I sometimes pass a narrow pavement on my way. Sometimes motorcycles park on the pavement and when I want to walk, I bump into them and it is difficult to pass. I feel very bad and think my navigation is wrong and sometimes that I am tired. The thought of these collisions make me nervous ..." (17)*

### Support and Relationship

Family/social support refers to the assistance that blind people receive from family, friends, rehabilitation and social services. This includes: self-care, transportation, financial help, emotional support, home making, and education.

*“...I ask someone to set in order my money because in this case there is no other way...”(16)*

*“... I always show my makeup to someone and ask if it is ok or not...”(18)*

*“...It is very difficult for me to eat fish because it has a lot of fish-bones. My family prepares it for me when it is a formal party...” (11)*

*“...I usually go shopping with my wife. I have no problem in supermarkets but in buying clothes I always go with my wife because I think that there will be problems choosing colors.....”. (1)*

### **Family**

All participants suggested that they need family support. People who received this support were satisfied. The support of their family made them confident to do their activities more independently.

*“...Before I became blind, I saw blind children and thought they were nasty and wore dirty clothes. When I became blind, at first I thought about suicide. I didn't know how my family and society would treat with me, but my wife was very kind with me...”(2)*

*“...My family helped me. If it weren't for their help and support it would have been very difficult for me to accept my blindness. They were always with me and took me places and never said things like 'because she is blind we don't take her to parties, shopping ...'...”(10)*

*“...My father really helped me. He learned how to write in Braille and then taught me...” (17)*

On the other hand, some participants experienced a lack of family support:

*“...Things like changing the arrangement of the furniture makes it very difficult for blind people in the beginning but it is for a short time. My family would make changes and did not always inform me about these changes. After 30 years, I can't make them pair off the slippers...”(7)*

*“...My family does not support me at all. When I ask them to read something for me, they refuse and say “it is your problem”...”(14)*

### **Society**

Society can also play a supportive role for blind people:

*“...People perceive our condition and as they see we are standing by the street, will often ask ,“do you want to cross the street, may I help you?...”(16)*

*“...When the taxi drivers see my white cane they honk the horn, stop and ask me where I want to go...”(17)*

*“...Bank tellers are trustful people, I usually ask them to give me 10000 rial bills. Our people are so kind and fill the bank's papers or get money for me from ATM...”(12)*

Sometimes a lack of social information about blind people's needs causes some problems:

*“...People should introduce themselves. They speak without telling their names and we may not recognize who is speaking...”(3)*

*“...People who live on this street know that there is a center for blind people, but some people park their cars in sidewalks and it makes some difficulties for us...”(12)*

*“...The sidewalks have a special line for blind people but we can't use it because people stand on it for window shopping...” (17)*

Some participants complained about the lack of social support:

*“...Shopping is difficult when I am alone, because people don't help. They want to cheat me. In the grocery store, for example, they put some rotten fruits in my packet...” (3)*

*“...Getting familiar with my new work place took only 2 or 3 days and there wasn't a friendly atmosphere because most of my colleagues were sighted people...” (10)*

*“...Because I am a blind person, many people don't feel comfortable with me and are not friendly with me. They don't invite me to parties because I they think I may make trouble for them due to my blindness...” (10)*

### **Attitudes**

Other people's attitudes toward blind people have a significant effect on adapting to blindness, social presence and self-efficacy of blind people.

### **Family**

Attitudes of family members as a small unit of society which has direct relationship with a blind person, can affect the blind people. Some families try to hide blindness.

*“...My family does not like me to use white cane. My little brother does not want his friends to see me with a white cane. My family does not want the neighbors to know that I am a blind...”(21)*

*“...Some families undervalue the blind person. They think that being blind person is a shameful thing for a family ...”(12)*

*“...My family thinks that a blind person is disabled and clumsy... they think that because my eyes don't see, my mind also does not work ...”(14)*

Sometimes the families overprotect the blind people because they underestimate their abilities and fear that blind people might hurt themselves. As a result, the family restricts the activities of blind people.

*"...My family is not bad but they are worried about me. My father is very anxious and won't let me cook..."(16)*

*"...I know why she does not let me cook. She is afraid that I will burn myself with oil. But I think I take a risk so I can learn ..."(11)*

### **Society**

Unfortunately, blind people's statements indicate that there are negative attitudes among people in society:

*"...People in society think that a person with a disability is a useless individual. Perhaps not totally useless, but they don't consider him as a normal person. They think he causes discomfort for others. I have experienced many negative social contacts..."(3)*

*"...Even physicians who are highly educated don't speak with us. They speak with our accompanier. They act as though we are deaf as well as blind..."(1)*

*"...People think a person with a disability has no mind or affection and no functionality..."(10)*

*"...Social attitudes and their treatments are important for us. Sometimes people look at us with pity because many blind people are poor. We don't want people to think that because we are blind we also must be poor ..."(20)*

According to participants, the media helps to improve social attitudes toward people with a disability through informative programs:

*"...Social attitudes have gotten better during the last decade. I think the media has had a great effect. People felt pity for us before, but nowadays we don't hear such words in the street..."(20)*

*"...I show my ability to other people. I use the buses, go to the university alone, and I don't need other peoples help. The media also affects social attitudes by informing people about our capabilities..."(8)*

### **Services & Policies**

Another environmental factor which affects blind people's lives are services and policies which includes: social security, employment and economic issues, supportive acts, educational issues and provides/delivers services.

### **Personal Safety**

Participants said that the lack of social security prevents their independent transportation or makes it difficult:

*"...I fear of being kidnapped. My family will not let me go out of the house alone and I agree..."(15)*

*"...I don't use the taxis because I am afraid the driver might kidnap me. Once they wanted to kidnap my sighted sister but she was able to escape..."(16)*

*"...My family will not let me travel alone. My mother says that the society is not safe for me. She said she would let me go everywhere I want if there was enough security..."(11)*

### **Employment & Economic Issues**

After becoming blind, some individuals may lose or change their jobs. On the other hand, because of the presence of a negative attitude among employers, blind people have only a small chance for employment.

*"...As a social science specialist, I spoke with a magazine editor to write some articles for them. Everything was ok until my brother told them that I was a blind person. When they realized my condition, they said that they would call me. It has been 6 months and I have not heard from them ..."(11)*

*"...Seeking a job, I went to a company. They told me that my resume was very good but because I am blind they would not employ me. They just said, 'sorry'..." (8)*

Unemployment causes economical problems for blind people which affects their lives:

*"...I can't attend some educational classes because taxi fare is expensive (I don't go out alone) and it causes difficulty for my family's economic status..."(11)*

*"...My only problem is transportation. If I had enough money, I could take a taxi and go everywhere I want very easily..."(2)*

*"...Blind people would like to use assistive technology and aids but they are too expensive. Because of their unemployment their economic status is not good and they cannot afford these aids..."(7)*

Participants were dissatisfied because government and related organizations did not support them:

*"...Getting a job is very difficult. There are only 2 jobs for us: as a teacher for disabled children or as an operator ..."(6)*

*"...Most blind people suffer from economic problems because the government does not support blind people..."(2)*

*"...The government should help to find some appropriate jobs for blind people..."(9)*

### Supportive Legislation

In many countries, there are some supportive legislation to facilitate blind peoples affairs and the delivery of services, but it seems that it is different in Iran:

*"...Here in Iran, we don't get much support by law. Even they don't pay attention to legislated acts..."(12)*

*"...I wanted to change my bank account but the bank teller would not do that for me. He said that I should be with a sighted accompanier..."(12)*

*"...In other countries people who want to get a driver's license study about disabled people. For example they know that when a blind person breaks his/her cane from the second part, it means he/she wants to get in the car...in Iran, these rules are not taught to drivers..."(9)*

### Educational Issues

Blindness causes some problems in educational environments. Some participants said that:

*"...Our books are written in Braille and we can't write in our books or fill the blanks like sighted students, so we must write the answers on a separate sheet. It is difficult to read the question and its answer at the same time, so I have to memorize the answer..."(17)*

*"...In formal exams, there is someone to write the answers on the answer sheet but they often do their job badly..."(17)*

*"...I decided to take the university entrance examination. I had to find the books and then I had to give them to my sister to be audiotaped. It was difficult and I felt like I was disabled and needed help..."(6)*

*"...Once in the first year of study in university, I audiotaped my professor's lecture but when I listened to it, there was nothing except student's noise..."(8)*

### Provide/Deliver Services

Each disability presents some needs for a person with a disability and must be met by service providers. For a blind person, these services include rehabilitation, psychology, environment modification, technology products and government facilities.

*"...There are many centers for blind people whose classes change blind peoples mood (high spirit)...the psychologists really helped me to adapt to my blindness..."(11)*

*"...When I was in England, I participated in a rehabilitation course. They taught me everything a blind person should know for an independent life such as transportation..."(3)*

*"...In the rehabilitation center, practitioners instruct techniques in an easy way, they communicate well with us and I am satisfied from their services..."(8)*

*"...There is a line with raised mosaics for blind people at the Baharestan subway station. We can use it and reach the train easily ..." (20)*

Sometimes quality of services is not good:

*"...Their training was not practical and useful for independent life, but when I went there and saw other blind people were like me, I felt better. I realized that I was not the only one who was blind..."(6)*

*"...Their cassettes are good but they are limited to the psychology field. There are few books in literature or other fields in the library..."(16)*

*"...Most of the techniques they teach to blind people are very eye-catching for sighted people if we do them as they teach to us..."(7)*

*"...Saderat Bank ATMs have a teller system and we can use them very easily. If other banks think that maybe one of their clients is blind and prepare such facilities, our problems would be reduced..."(10)*

Most service providers do not know how to communicate with a blind person:

*"...The staff of some centers don't behave appropriately. They undervalue blind people and only give them orders of what to do or not to do ..." (17)*

*"...Welfare services center is where we go frequently and their staff should help disabled people. We expect them to understand our condition more than other people but unfortunately they treat us quite badly..."(10)*

Participants had some suggestions:

*"...Print the cost of bills in Braille in one corner or print the books/pamphlets in Braille..."(12)*

*"...Print expiration date of food products in Braille..."(7)*

*"...Prepare more assistive aids for us..."(20)*

### Discussion:

The results of this study revealed that what activities blind people do in their daily lives, what difficulties they are dealing with during performing these activities, what services they need and what impacts the environment has for them. One of the challenges

blind people were dealing with was lack of accessibility of assistive devices and technologies. Participants declared that there was not enough attention for understanding blind people needs and designing assistive aids for them. Lack of such devices and being expensive made blind people use less assistive aids. Participant indicated that using assistive aids helped them to perform their activities more independently. These findings are in agreement with the result of other studies, which have suggested that assistive aids reduce dependency and increase self-efficacy in blind people (23,24,25). Participants also stated that responsible organizations (such as municipality) are not familiar with urban planning for disabled people. Problems with sidewalk pavement and puddles/poor drainage were the most frequently mentioned environmental barriers. These obstacles cause stress for blind people while walking and sometimes make them isolate in their homes. In some studies environment obstacles included: Leaving bikes on pavements or letting bushes and branches hang on to pavements, Uneven pavements, ... (26,27,28). Despite legislative requirements for accommodation, people with disabilities face barriers to activities, both in the built and social environments. Determined people with disabilities were able to overcome barriers, but required additional expenditure of resources to do so. Community design that can include people with disabilities requires detailed understanding of barriers specific both to types of impairments and to different types of assistive mobility technologies. It seems that blind people needs that sighted people understand their condition and support them. These supports make them confident. Results suggest an important role of family in blind people life. Most of daily activities that need vision to perform such as recognizing colors are done with sighted people - mostly family members-help. in a study conducted by Pagliuca et al. autonomy was evidenced, although the search for support from other persons was emphasized (29). Another study suggested that the family and community all do play vital roles in the social inclusion of blind people (30). On the other hand, family and social attitudes could have a great impact on different aspects of blind people's life. Unfortunately, the results indicate that there are a negative attitude toward blindness and blind people among people and a blind individual is supposed to be a disabled person. Most of people

feel pity for blind people or reject them that cause social isolation for blind people. In a study, the author, who is blind, pointed out that success in overcoming blindness is mainly a personal and lifelong struggle of the handicapped individual. His success or failure, however, will be determined largely by the attitude of his family and the public toward him as a blind person (31). In some cases negative attitudes among employers prevent them to employ a blind employee. This issue have been suggested in some other studies (32,33). It seems that, the use of contact with a person with a disability is more efficacious in changing attitudes than only information provision.

The results suggested that there are some difficulties (weakness) in providing services for blind people such as: training inappropriate techniques for improving independence of blind people, unqualified trainers and improper behavior of service providers. In a study by Smeltzer et al. findings suggested that factors such as communication barriers; lack of knowledge and awareness among healthcare providers and access issues can affect service providing for disabled people (34).

#### **Conclusion:**

The purpose of this study was to describe the experiences of blind people while performing daily living activities. The research question used to start the interview was: "How do you perform your daily living activities?" This study helps identify how blind people's lives are affected by blindness. This study was conducted to enable occupational therapists and other health care professionals to become more competent during assessment, counseling, teaching, giving support, or other interventions as needed to assist blind people. By understanding the experience of blind people, occupational therapists may become more competent in providing rehabilitation services when blind people are referred to rehabilitation centers. Recommendations for further research include longitudinal studies of this population to identify challenges that blind people deal with. This would facilitate long-term goals in the care. Studies that include more diversity in demographic characteristics would provide greater generalization. Characteristics such as adolescent age group, married and single, ethnicity, and socioeconomic status are particularly important to target.



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