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Sexual Reproductive Health of Women with Spinal Cord Injury from the Aspect of Environmental Health: A Qualitative Study

Marjan Akhavan Amjadi[1], Masoumeh Simbar[2*], Seyyed Ali Hoseini[3], Farid Zaeri[4]

[1]PhD, Assistant Professor, Department of Midwifery, Faculty of Nursing and Midwifery, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran.

[2]PhD, Professor, Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Science, Tehran, Iran. (Corresponding author)*

[3]PhD, Professor, Social Determinants of Health Research Center and Department of Occupational Therapy, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran.

[4]PhD, Professor, Proteomics Research Center and Department of Biological Statistics, Paramedical Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Background and Aim: This study aimed to assess the sexual and reproductive health (SRH) needs of women with spinal cord injury (SCI) from the aspect of environmental health.

Materials and Methods: This qualitative study was part of a larger study with a sequential exploratory design. Sampling began in June 2016 and ended in October 2016 in Tehran. The participants included married women with SCI who lived in Tehran Province, Iran. They were selected by purposive sampling, and sampling was continued until data saturation. Individual semi-structured in-depth interviews were conducted with 23 participants. The conventional content analysis was used for data classification using the Graneheim and Lundman method.

Results: improvement of the performance of the municipality was a basic component of the need for environmental health in provision of SRH services for women with SCI that was explained in 2 categories and 6 subcategories. The categories included “improving the transportation system” and “developing appropriate physical infrastructure”. **Conclusion:** Women with SCI were interested in caring for their SRH and receiving the respective services. However, there are problems against providing them with healthcare services that need to be identified and eliminated. They need social support and the municipality is the organization that can provide SRH services to such women. Therefore, providing environmental health can promote SRH of such women.

Keywords: Reproductive Health; Sexual Health; Spinal Cord Injury; Social Support; Environmental Health

***Corresponding author**: Masoumeh Simbar**,** Tel: 00982188202512, Email: msimbar@sbmu.ac.ir **Received**: 22 January 2023, **Accepted**: 12 April 2023, **ePublish**: Spring 2023 **Citation:** Akhavan Amjadi M, Simbar M, Hoseini SA, Zaeri F. Sexual Reproductive Health of Women with Spinal Cord Injury from the Aspect of Environmental Health: A Qualitative Study. Knowledge of Nursing Journal. 2023;1(1):52-64.

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Introduction

Environmental health is a field of public health that addresses the physical, chemical, biological, social and psychological factors in an environment [1]. Urbanization with its significant impact on human health is one of the most notable issues in the 21st century. Near 70% of the world's population will be living in cities by 2050. The fundamental factors affecting environmental health include urban governance, demographic characteristics, natural and man-made environments, socioeconomic development, emergency health services and management, and food security. Although urban living can provide great opportunities for people, it can also create health challenges such as higher risk of road accidents, compared with rural living [2]. Sexual and reproductive health (SRH) can be affected by physical disability caused by accidents or calamities. The physically disabled individuals are those missing a limb, having a spinal cord injury (SCI), or having other physical disabilities such as blindness and deafness, which cannot be cured [3]. SCI is associated with physical disability and motor impairment that limit motor skills [4].

According to the World Health Organization, there are over one billion people (15% of the world's population) suffering from a type of disability (10% of them are women) worldwide [5], and over 23% of SCIs occur in individuals between 19 and 30 years [6] that mostly live in developing countries. About 8.5 million people with moderate to severe disability are added yearly to the world's population of disabled individuals, making it necessary to find solutions to enhance receipt of services by this group of individuals [5]. In Australia, post-traumatic SCI cases are reportedly 490 to 886 cases per one million population [7]. Around 52,000 women with SCI live in the United States [8]. In Iran, the prevalence of SCI is 4.4 in every 10,000 people, and the reported incidence rate between 2003 and 2008 was 2.2 per 10,000 people [9]. There are currently 100,000 known cases of SCI, and 3,000 new cases are recorded every year [10]. Of all, 82.2% of SCIs are due to traumas, car accidents, and war [11].

On the other hand, according to the Declaration of Sexual and Reproductive Rights, everyone deserves to enjoy high-quality healthcare services. The right to enjoy health in international regulations of human rights is a claim emphasizing on arrangement of social systems -norms, entities, rules and a convenient environment- that can provide the

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most desirable safety for individuals to benefit from their basic rights. This is a comprehensive right that not only is extended towards timely and suitable access to healthcare services but also stresses on basic factors of health such as health-related information, access to drinking water and food, housing, and so on [12].

Regarding the women's reproductive health, easy access to healthcare services is an essential factor in health promotion. Urban accommodations should boost individual independence. It should be noted that successful planning and programming for women's health requires special organizational and management bodies in official healthcare organizations to periodically monitor and evaluate their plans and research requirements. Some factors are effective for promotion of women's health such as efficient interaction between the official executives, planning bodies, medical and scientific communities, and other organizations affiliated to women's health [13]. On the other hand, evidence shows inadequate SRH care in women with SCI. As a result, need assessment in this regard appears to be essential. Concerning the importance of environmental health, this study aimed to assess the SRH needs of women with SCI from the aspect of environmental health.

Methods

This study was part of a larger study with a mixed-method sequential explanatory design that identified the SRH needs of women with SCI. This qualitative study used the content analysis method by classifying the qualitative data. The participants were selected from a research community qualified for this research who were interested in participation in the study. The inclusion criteria were (I) Iranian married women with SCI living in Tehran and aged between 18-55 years who were supported by the Welfare Organization or a protection center for patients with SCI in Iran, and (II) presence of key informants such as their spouses without SCI (had to be Iranian) who had lived with their disabled wives for at least 6 months in addition to service providers like social workers, occupational therapists, physiotherapists, gynecologists, authorities of rehabilitation centers, and general directors of the protection centers, each with at least 3 years of working experience. The research field included rehabilitation centers in north, south, east, and west of Tehran which were accessible for women with SCI and had at least one room for the interview. Data

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collection was conducted by either approaching the mentioned centers or going to the houses of disabled women with a social worker after coordination with the welfare center. The gynecologists were interviewed at their offices. In-depth interviews were conducted with all participants. Sampling continued until data saturation [14].

Sampling began in June 2016 and ended in October 2016 in Tehran. Data collection began after obtaining permission from the Nursing and Midwifery Faculties of Shahid Beheshti University and its international branch and coordination with Tehran Organization of Welfare and Protection Center for the Spinal Cord Disabled of Iran. Before the interviews, the researcher introduced herself and clearly explained the objectives of the study. Participation in the study was voluntary and the participants were ensured about the confidentiality of their information. Also, they were informed that they can leave the interview whenever they wished to do so. Written informed consent was obtained from the participants to conduct the interview and record it. The researcher presented to the centers supported by Tehran Welfare Organization and the Protection Center of Spinal Cord Disabled of Iran to carry out the interviews.

In-depth, semi-structured individual interviews were conducted with women suffering from SCI and key informants qualified for this study to collect the necessary information. In-depth individual interviews were started with two general questions and continued with open-ended questions (what is SRH care? How much SRH care do you currently receive?). Each interview lasted for 60 to 90 minutes. All interviews were recorded. Moreover, nonverbal characteristics of the interviewees were transcribed by the interviewer. After completing the interviews and listening to them for several times, they were transcribed verbatim by the researcher. Totally, 23 in-depth individual interviews were conducted with 15 married women with SCI aged 18-55 years and 8 key informants; among them were three disabled women's husbands.

The collected data were analyzed by qualitative conventional content analysis based on the Graneheim and Lundman method [15]. Data analysis was started from the beginning of the interviews and continued during the interviews (simultaneous analysis); accordingly, by the end of the interviews and within the shortest possible time, the researcher carefully listened to the recorded information several times, and then

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transcribed them verbatim. Next, the transcripts were reviewed and checked with the recorded interviews to ensure accuracy. The transcripts were read several times to develop a general idea. The codes were then identified and similar codes were merged to create a subcategory. Subcategories were merged into categories according to their common characteristics, and the categories with a common concept formed a theme.

In order to verify the trustworthiness of the findings, the Lincoln and Guba criteria were applied [16]. In order to increase the credibility of the findings, the researcher dedicated sufficient time to data collection by continual reviewing. Integration of data collection methods (individual interview, observations), integration of data resources (interview with women suffering from SCI, key informants, and literature review), integration of research environments (two welfare centers and two branches of protection centers for the disabled individuals with SCI in Iran) and variations in the participants' characteristics (different educational levels, different locations, different levels of SCI, and different causes of disability) also increased data credibility. In order to ensure the accuracy of the extracted information, several interviews were coded and returned to the participants for verification. The findings were validated by some colleagues (reproductive health specialists and occupational therapists) who were not directly involved in the study. The researcher attempted not to include her own pre-assumptions in data collection and other analytical procedures to ensure data validity. To assess comprehensiveness, the researcher presented findings to 5 physically disabled women who were not engaged in the study. The study was approved by the Ethics Committee on 2015/12/15 (ethical code: IR.SBMU.IASB.REC, number: 8217). This study was funded by the Vice chancellor for Research of Shahid Beheshti School of Nursing and Midwifery, Tehran, Iran (grant number 8217).

Results

A total of 15 married women in reproductive age participated in this study with a mean age of 39.1 years (range 25 to 52 years). The majority of participants were housewives with high-school diploma level of education. The demographic characteristics of the participants are presented in Table 1. The key informants included social workers, occupational therapists, physiotherapists, gynecologists, general directors of the

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protection centers, and spouses of women with SCI (Tables 2 and 3).

Table1: Demographic characteristics of participants

Pregnancy during post-injury period (N/%)				Causes of Injury (N/%)			Level of Injury (N/%)				Occupation (N/%)		Education (N/%)			Age (Mean)
More	Twice	Once	Non	Others	Congenital	Car accident	Unknown	Lumbar	Thoracic	Cervical	Employee	Housewife	University degree	High-school diploma	Middle-School or less	
1 (6.7)	2 (13.3)	2 (13.3)	10 (66.7)	2 (13.3)	2 (13.3)	11 (73.3)	3 (20)	3 (20)	8 (53.3)	1 (6.7)	2 (13.3)	13 (86.7)	5 (33.3)	6 (40)	4 (26.7)	25-52 (39.13)

Table 2: characteristics of spouses of women with spinal cord injury

Row	Age	Education	Occupation	Physical health status	Cause of the spouse's injury	Duration of marriage	Duration Of injury	Level of spouse's injury	Location of interview
1	36	Master	Employee	Healthy	Car accident	3 years	14 years	L1,L2	Protection Center of Spinal Cord Disables of Iran in Molavi
2	60	Diploma	Driver	Healthy	Accident	36 years	9 years	C6,C7	Protection Center of Spinal Cord Disables of Iran in Molavi
3	34	Diploma	Employee	Healthy	Accident	8 years	5 years	T8,T9,T10	Protection Center of Spinal Cord Disables of Iran in Tajrish

Table 3: characteristics of the key informants

Row	Age	Occupation	Records of service	Education	Location of interview
1	35	Social worker	5 years	Master	Protection Center of Spinal Cord Disables of Iran in Molavi
2	25	Occupational therapist	3 years	Bachelor	Protection Center of Spinal Cord Disables of Iran in Molavi
3	48	Physiotherapist	20 years	Master	Narmak Welfare Center
4	45	Gynecologist	12 years	Specialized doctorate	Private office
5	41	General director of Protection Center of Spinal Cord Disables of Iran	10 years	Master	Protection Center of Spinal Cord Disables of Iran in Tajrish

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The results demonstrated that environmental health was a critical aspect for promotion of SRH of women with SCI and since their disability was of physical-motor type, improving the performance of municipalities can be a significant factor for promotion of these women's SRH. Improvement of municipality performance was explained in 2 categories and 6 subcategories. The categories included improvement of the transportation system to enhance accessibility of SRH services and establishment of convenient physical infrastructure for people with SCI that demonstrated the participants' perception of the concept "the need for improvement of municipality performance to promote SRH in women with SCI". The categories and subcategories extracted from improvement of municipality performance are presented in Diagram 1.

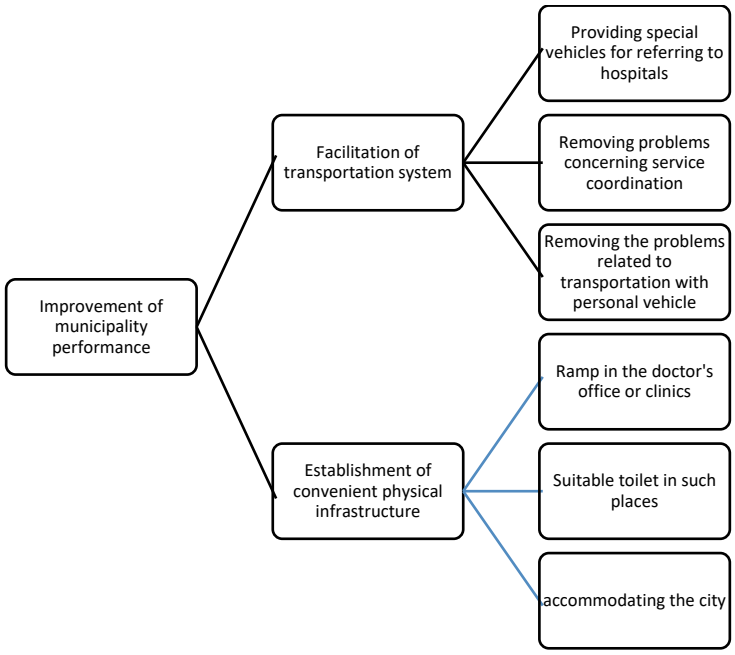

Fig 1- The needs for improving the performance of municipalities and dimensions for improving the quality of SRH in women with SCI

Improvement of the transportation system:

The majority of the participants stated the need for improvement of the transportation system to allow easier access to the SRH services. This category composed of three subcategories including providing special vehicles for referring to hospitals, obviating the problems concerning service coordination, and obviating the problems

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related to transportation with personal transportation vehicles.

Some interviewees pointed to the need for special vehicles for them to refer to hospitals:

"The doctor said that I need to be hospitalized. When I got home, I stayed there for 3 to 4 days… because it's so hard to go there" (A. a 45-year-old, middle-school degree, thoracic).

Some participants complained of transportation service coordination problems:

"We need to coordinate with the transportation service. They get full soon" (A. a 52-year-old, high-school diploma, HTLV[1]).

Some participants stated problems concerning transportation with their personal vehicle:

"As we need to be lifted to get in and out of the car, it's again difficult to go with a personal car" (Z. a 50-year-old, grade six elementary school, cervical).

Establishment of convenient physical infrastructure:

Establishment of convenient physical infrastructure for those with SCI is considered a critical requirement to which all participants referred. Three subcategories constituted this category including a ramp at the doctors' offices or clinics, suitable restrooms in such places, and accommodating the city to facilitate referral to healthcare centers.

All participants spoke of the need for a ramp at the doctors' offices or clinics:

"There is an elevator in most offices but they also have at least two or three steps…" (a spouse, 36-year-old, Master's degree, three years of marriage after injury).

Many participants pointed to the need for suitable restrooms in the offices or clinics:

"Not all offices do have toilet seats" (A, 52-year-old, high-school diploma, HTLV[1]).

One participant pointed to accommodations of the city to facilitate referral to healthcare centers:

"Some districts of Tehran, for example districts 1, 2, 3, 5, and 14 have been

[1] -Human T cell lymphotropic virus

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accommodated but some have not (a spouse, 36-year-old, Master's degree, 3 years of marriage after injury).

Discussion

To the best of the authors' knowledge, this study appears to be the first qualitative study in Iran that assessed the SRH needs of women with SCI from the aspect of environmental health. Their fundamental needs extracted by data analysis included improvement of the transportation system for easier access to SRH services and establishment of suitable physical infrastructure convenient for people suffering from SCI.

Making the transportation system more convenient to have easy access to SRH services was a crucial issue to which most participants referred, because all of them suffered from physical disabilities and limited motor skills due to SCI which affected their independence. Thus, despite the availability of appropriate healthcare services for such patients, their access to healthcare services is poor as they have lost their personal independence, and lack of a convenient transportation system for people with SCI is a contributing factor. Depending on the severity of physical disability based on the extent of SCI, different facilities may be required in the transportation system.

In a study conducted in the United States, transportation was the second environmental barrier reported by subjects with SCI [17]. Thus, urban transportation vehicles are specifically important for people to commute and take part in social affairs [18, 19]. Accessibility of the public transportation system in urban areas is a vital issue for people with disabilities that leaves a direct impact on everyone's life particularly the handicapped and disabled veterans [20]. Enhancing the mobility of people with disabilities through accommodating public transportation systems increases their access to such facilities. Many countries have increasingly allocated budgets to urban accommodation through raising awareness and giving sufficient information concerning the consequences of inaccessibility of the transportation system for people with disabilities that deprives them from the existing facilities [21].

A descriptive study in Colombia showed that satisfaction with transportation was associated with the use of personal vehicles. There was overall satisfaction with access to public facilities [22]; whereas, inadequacy and inconvenience of spaces used by the

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disabled are regarded as a major challenge in Iran [23]. In a study conducted in Iran, inconvenience and inaccessibility of public transportation vehicles were considered as the first and main problem with respect to transportation for people with disabilities [21]. A study in Canada showed that health protection in people with SCI requires access to both regular healthcare and support services [24]. Therefore, their access to SRH services can be improved through inter-organizational interactions and proper planning to make the transportation system more convenient for the disabled.

Moreover, all participants made reference to establishment of appropriate physical infrastructure convenient for people with SCI. From the standpoint of these people, accommodated physical infrastructure refers to provision of ramps and convenient restrooms at the doctors' offices and clinics and urban accommodation to facilitate their referral to healthcare centers.

In many countries around the world, from the seventies onward, accommodation of public places according to the needs of people with physical disabilities was implemented [25]. A study in Iran indicated that inconvenience of sidewalks was the second transportation problem for people with disabilities in Shiraz. The current sidewalks are narrow and unsafe, and there is risk of injury for disabled individuals. Uneven walkways, inconvenient steps, and lack of ramps on pedestrian bridges have created serious problems for the disabled [21]. Generally, people with disabilities think that urban spaces including sidewalks, alleys, buildings of public organizations, and so on are not fitted for the disabled [26].

In a study conducted by Valadan in Iran, no significant association was found between the accommodation of urban areas and provision of services from the viewpoints of people with disability but they reported that only 50% of different areas in healthcare and treatment centers were accessible for people with disabilities. In addition, the most convenient areas were the elevators, corridors, pathways, lobbies, administrative departments, ramps, restrooms, automatic doors, stairs, main entrance, and waiting rooms [26]. The results of a study in Virginia also indicated that people with disabilities had major problems for doing 65% of their affairs. The main architectural obstacles they faced were related to the parking lots and the main entrance of their working places [27].

The authorities should provide the infrastructure and facilities to meet the

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requirements of the disabled such that they can live a high-quality life. Therefore, the authorities should treat people equally and avoid discrimination. Currently, although in many countries particularly the developed ones, a combination of services has been provided to people with disabilities, in most countries including Iran, discriminatory treatment of the disabled is witnessed [26].

Conclusion

People with disabilities have the rights that should be taken into account including appropriate design and accommodation of urban spaces for them, as they face several problems when inconvenient urban facilities limit their access to many areas including the healthcare centers. Easy and fast access to healthcare centers is a necessity for the disabled, which should be provided. According to the present results, improvement of SRH of women with SCI requires inter-organizational cooperation for improvement and promotion of the performance of municipalities to enhance public transportation for the disabled individuals, and provide the necessary infrastructure in urban areas to enhance their access to different services. Therefore, provision of environmental health can significantly promote the SRH of women with SCI.

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Conflict of Interest

Author (1) declares that she has no conflict of interest. Author (2) has received research grants from Vice chancellor of research in Shahid Beheshti School of Nursing and Midwifery. Author (3) declares that there is no conflict of interest. Author (4) declares that he has no conflict of interest.

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