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# Environmental Barriers and Facilities at Health Care Settings as Perceived by Physically Disabled People

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***Abstract:*** **Disability is a complex process involving bodily functions, health, environment, activity limitations, and restrictions in social participation. Health care buildings are very important places for the disabled, as it is where they have their treatment sessions, medical checkups, and follow-ups. Aim: This study aimed to assess the environmental barriers and facilities at health care settings as perceived by physically disabled people. Design: A descriptive cross-sectional research design was utilized. Sample: the study was carried out on 216 physically disabled persons. Setting: The study was conducted at governmental health care settings affiliated with the Ministry of Health in Port Said city including three outpatients' clinics and five primary health care centers. Tools: Self-Administered Questionnaire was used to collect data; it contained three parts as follows: Personal characteristics, opinions & satisfaction levels of physically disabled people toward the external environment and opinions& satisfaction levels of physically disabled people toward the internal environment. Results: 70.4 % of the study group was satisfied with main entrances, 62.9% were convinced about gardens and open spaces and 66.7% were contented regarding car parking. Furthermore, 89.4% unsatisfied with finishing work. There were highly statically significant differences between causes of disability, length of disability, ambulation device, place of a visit, and their overall total scores of satisfactions. Conclusion: Nearly two-thirds of the study group was satisfied concerning the outside environment while slightly more than two-thirds were unsatisfied about the inside environment of buildings. More than half of the study group was dissatisfied about both inside and outside environment, there were statistically significant differences between the study group's opinions about outside& inside the environment of the health settings. Recommendations. The Egyptian Ministry of Health should pay great attention to the internal and external environment for the physically disabled people through reviewing and changing building codes so that it includes the necessary acts that legislate the design requirements for this group of people.**

***Keywords:*** **Barriers, Environmental Facilities, Physically disabled people.**

## I. INTRODUCTION

Disability is conceptualized as a complex process involving bodily functions, health, environment, activity limitations, and restrictions in social participation **(Mitra, 2018)**. Optimal health care for people with physical disabilities is essential if their quality of life is to improve. Understanding the needs of the physically disabled population may be a complex process as it involves understanding the person, the society in which he or she lives, and how these interact **(National League of Nursing, 2017).** To assist in improving the health outcomes of people with disabilities, it is essential to understand what the barriers to and facilitators of this population are as it relates to medical services **(Byrne, Lennox & Ware, 2016).**

Disability, as defined by the World Health Organization's is an umbrella term for impairments, activity limitations, and participation restrictions. The term is used to refer to individual functioning, including physical impairment, sensory impairment, cognitive impairment, intellectual impairment mental illness, various types of chronic disease, and environmental factors (e.g. negative attitudes, inaccessible transportation and public buildings, and limited social supports) ***(WHO, 2016).***

Globally, people who live with some form of disability constitute approximately 15% or an estimated 1 billion people ***(WHO, 2018).*** In Egypt, disability rates are reported to be very low (0.7% of the total population) which are much lower than the international data-sets ***(Ghazawy, Mohammed & Mahfouz., 2020)***. The major causes of disability in Egypt are congenital abnormalities, followed by injuries/accidents, old age, epidemics, and other diseases, and birth-related conditions ***(Gutenbrunner & Nugraha, 2018).***

Peoples with disabilities are more exposed to co-morbidities associated with their disability, they encounter substantial obstacles to participating in health-promoting activities due to physical and social environments that limit fitness and recreation opportunities, including inaccessible parks, trails, sidewalks, and fitness facilities ***(Centers for Disease Control and Prevention, 2016)***, therefore a greater need for health service uses to maintain their physical and mental integrity. Environment adaptability and accessibility to the disabled is a vital and important issue` to have a fair life. Primary health care centers and hospital buildings are very important places for the disabled, as it is where they have their treatment sessions, medical checkups, and follow-ups that make it an essential and crucial place for them ***(Cawood, & Visagie, 2015).***

The primary health care setting is the first point of contact people with physical disabilities have with the health system and is essential to making health care universally accessible to individuals and families in the community acceptably and affordably, with their full participation. The concept of primary health care was formally adopted by the World Health Organization (WHO) through the Alma-Ata declaration as to the preferred method for providing a comprehensive, universal, equitable, and affordable healthcare service, and it could reduce stigma, improve access to care, reduce chronicity of mental illness, and improve social integration ***(Athie, et al., 2016).***

There are two scopes of the barrier-free environment, one is the physical environment, such as the design of the following: transportation facilities, buildings, roads, leisure, and educational fields ***(Al-Rashaida et al.,2018).*** It must be clearly understood that the design concept of a barrier-free environment not only a ramp but also many other necessary aspects, for instance, entrances, corridors, elevators, stairs, doors, toilets, signage, operating mechanisms, and fixed features ***(Masood and Shaheen, 2014).*** In a word, a barrier-free environment means one in which no obstacles will hinder people with disabilities or others from participating in activities in their life ***(International Labor Organization, 2018)***.

Besides, the people with disabilities report worse access barriers (including physical access into buildings) to services and worse satisfaction with provided services, that their needs are not recognized, and that they generally face several barriers, both structural (eg, lack of transportation), financial, and cultural (eg, misconceptions about disability). A systematic review on access to healthcare demonstrated that "… disabled people are restricted in accessing healthcare and report less satisfaction with their medical care". Some of the barriers to healthcare access include lack of transport and inaccessible buildings. People with disabilities often report that their needs are not understood or that they are treated as patients of low priority ***(Sakellariou, & Rotarou, 2017).***

The first facility of the fixture is parking space for people with disabilities which is an unobstructed rectangular area exclusive of any lane or path for the temporary parking of a car or vehicle **(*Mirzoev, Green, & Van Kalliecharan, 2015).*** As defined the accessible route is a route that is used by people with disabilities. In other words, it is a permanent route that is used by a wheelchair user, walking device, or by a person with a guide. Recreational facilities providing programs and services to the public or special groups, and clubs, should be fully accessible to people with disabilities. All areas and amenities should be accessible to people with disabilities ***(Ryan & Bauman, 2015).***

The community health nurse has essential roles in helping peoples with disabilities return to daily life activities with the best utilization of their remaining physical and functional abilities. They are challenged to use their expertise, skills, and clinical knowledge to provide people with the physically disabled with excellent nursing care**.** A healthy environment enables nurses to both achieve the goals of the organization and derive people with physically disabled satisfaction from their work ***(Sakellariou, & Rotarou, 2017)***.

Also, community health Nurses should play a significant role in policy and planning aimed at improving the quality of life for people with disabilities, in the care of people with disabilities, and the prevention of disability *(National Disability Services, 2016)*. Nurses are key to early detection and intervention, and need to be involved in health promotion, prevention, teaching and counseling programs for people with disabilities and their families". Today nurses may play any one of multiple roles in the provision of health care to people with disabilities across the life span. Nurses may be responsible for the personal care of people with disabilities within a disability-specific or generic service setting or on a primary or specialty health care ***(Fotiadou, Malliarou, Zetta & Gouva, 2016).***

**1.1 Significance of the study:**

People with disabilities represent a large and growing sector of the population that needs health care services. The government of Egypt places a high priority on disability, with governmental and non-governmental organizations working together to solve disability issues. However, current services cover only about 10% of the total number of persons with disabilities. It makes it necessary to think of this population and to try to minimize barriers and obstacles to help them to get better care ***(WHO, 2015).*** Egypt had two million people with functional disabilities, mental disabilities comprised almost 75 % of all disabilities, mobility impairment making up 15 %, and visual and hearing impairment constituting the remaining 11 % ***(WHO, 2018).*** However, many people with disabilities do not seek out because often, health care facilities are not accessible or do not have the equipment needed to serve people with disabilities. As a result, some people with disabilities only pursue medical attention for emergency or acute conditions, Primary health care centers and hospitals are part of the community where disabled individuals are regular customers ***(Gutenbrunner, & Nugraham 2018).*** Therefore, it is important to pay attention to the health care setting buildings in Egypt to adjust to the increased number of disabled persons & to ensure they receive suitable facilities & remove barriers they may face during their visit to the health settings.

**1.2 Aim of this study:**

This study aimed to assess environmental barriers and facilities at health care settings as perceived by physically disabled people.

**1.3 Research questions:**

**1.** What are the opinions of the physically disabled people regarding internal environmental facilities in primary health care?

**2.** What are the opinions of the physically disabled people regarding external environmental facilities in primary health care?

**3.** To what are the barriers to the extent the physically disabled people regarding environmental facilities in primary health care?

## II. SUBJECTS AND METHOD

**2.1 Research design**

A descriptive cross-sectional research design was utilized in this study.

**2.2 Setting:**

The study was conducted at governmental health care settings affiliated with the Ministry of Health in Port Said governorate. There are 11 governmental hospitals and 32 primary health care centers presented at Port Said Governorate. Out of the eleven governmental hospitals, three outpatients' clinics located at Port Said general hospital, Elzohour central hospital, and Port Fouad general hospital was selected. Moreover, five primary health care centers represented the five districts of Port Said city were recruited (one health care center was chosen randomly from each district). The chosen primary health care centers were; El Kuwait health care center from El Manakh district, Omar Ibn El-Khattab health center located at El-Zhour district, Mustafa Kamel health care center situated at E-Dawahey district, Bahr El-Bakr health care center at El-Ganoub district, Al Arab health care center located at Al-Arab district and Port -Fouad health care center located at Port-Fouad district. Selection of the aforementioned settings based on the high flow rate of the physically disabled persons during the last year compared to other health care settings located at Port Said City. Each of the

previously mentioned centers has a chronic disease clinic that providing non-profit health care services for physically disabled people such as history taking, physical examination, vital signs examination, and lab investigations for blood sugar.

**2.3 Target population:**

The study subjects comprised a sample of 216 physically disabled persons (males & females) who attended the different outpatient clinics of the previously mentioned settings (both at governmental hospitals clinics and primary health care centers) during the period of data collection. They were all physically disabled persons with a permanent disability of more than six months. Physically disabled persons who with or without an assistive walking aid.

**2.4 Sample technique**

Non-Probability, convenience sampling was used in the study in which the physically disabled persons were chosen based on their relative ease of access to the aforementioned health care settings. A sampling frame which includes a list of all primary health care centers of the districts, and outpatient clinics for physically disabled persons at Port Said governmental hospitals Hospital was developed, then two settings were selected randomly from each district.

**2.5 Sample size**

The sample size was determined by using the following equation.

$$\textbf{Sample Size (n)} = \frac{Z^2}{\Delta^2} P\,(100 - P)$$ **(Dobson, 1984)**

***Where:***

**P:** The expected percentage of physically disabled people =15% ***(WHO, 2015).***
**Z:** A percentile of standard normal distribution determined by 95% confidence level = 1.96
**Δ :** The width of the confidence interval = 5.

$$\textbf{Sample Size (n)} = \frac{1.96^2}{[5]^2}\ 15 \times (100 - 15) = \textbf{196}$$

The calculated sample size was 196 physically disabled people. Due to the design effects (1.25), expected non-participating rate (10%). The final sample size was 216 physically disabled people.

People with physically disabled attending the previously mentioned settings were included in the study, total number = 216 physically disabled persons, distributed as follows ( 28 from Port Said general hospital, 27 from El-Zohour central hospital, 32 from port Fouad general hospital, 31from El-Kuwait health care center, 24 Omar Ibn El-Khattab health center, 20 from Mustafa Kamal health care center, 20 Bahr El Bakr health care center, and 18 from Al-Arab health care center and 16 from Port Fouad health care center.

**Tools for Data Collection:**

To collect data for this study, the following tools were used:

**Environmental Satisfaction scale**: developed by ***Ewemar (2008),*** was used to collect data for this study, it aimed to determine opinion & satisfaction levels of physically disabled people toward internal & external environment of health settings, the tool was translated from English to Arabic language and revised by a panel of nursing academic staff to suit the clients. It contains three parts as follows:

**Part 1**: **Personal characteristics**: it included data related to; age, gender, marital status, type of disability, length of disability, ambulation deficit, and place of visit.

**Part 2**: **Opinion & satisfaction levels of physically disabled people toward the external environment of health setting**: It consisted of 15questions, including three subsections as follows: First: Hospital main entrances consisted of (2 questions). Second: Gardens & open spaces consisted of (3 questions) and the Third: Car parking consists of (2 questions).

**Part 3: Opinion & satisfaction levels of physically disabled people toward the internal environment of health setting**, it included six main subsections as follows: First: (5 questions), main buildings entrances (2 questions), Second: Horizontal accessibility (4 questions), Third: Vertical accessibility (3 questions), Forth: Toilets (2 questions), Fifth: Finishing work (2 questions) and Sixth: Doors (2 questions).

**Scoring system**

All the questions of the second & third part had 5-point Likert scale answers from +2 (strongly agree) to -2 (strongly disagree) for positive statements; and from +2 (strongly disagree) to -2 (strongly agree) for negative statements. The mean satisfaction score for each domain was then calculated and compared between different groups. The total score for the studied sample was evaluated as those who scored +1 and +2 on Likert scale items were considered satisfied while those who were neutral about the service or scored negative on the scale were considered unsatisfied (***Bright, & Kuper, 2018)***

**Validity**

Tools of data collection are tested for content validity by a panel of five experts in the field of Community Health Nursing, Faculty of nursing (Cairo University), and Public Health, Faculty of Medicine (Mansoura University). It is conducted to test the tools for appropriateness, comprehensiveness, relevance, and clearance. Their opinions are elicited regarding the tool format, layout, and consistency. The necessary modifications are done accordingly.

**Reliability**

Cronbach's Coefficient Alpha: This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0 and the higher values reflects a higher degree of internal consistency. The results were in the range from 0.8330 and 0.9282, this range is considered high; the result ensures the reliability of the questionnaire.

| Section | No. of items | Cronbach's alpha |
|---|---|---|
| The external space of hospital buildings | 7 | 0.8930 |
| The internal environment of buildings | 18 | 0.9179 |
| **Total** | **25** | **0.9647** |

**Pilot study**

A pilot study was done on 10 % (25 people with physically disabled) clients to test clarity, applicability, understanding of language, and time needed for completing the tool. Few items were modified according to participants' responses in the pilot study. The subjects included in the pilot study were excluded from the total study sample.

**Fieldwork:**

Once permission was granted to proceed with the current study from responsible and authoritative parties at general hospital and primary health care centers, in each center, the researcher attended the center director's office to introduce themself, explain the purpose of the study; then, the director referred the researcher to the responsible nurse. The researchers-initiated data collection and contacted each participant of a physically disabled person to explain the purpose and nature of the study. The participants were interviewed individually to complete the sheet of the study; the total time allowed to fulfill it by each person was 45 to 60 minutes. Data was collected three days a week from 10th March 2018 to 10th August 2018. After completion, the researcher ensured that all statements included in the tools were completed. Then, the studied physically disabled person were thanked for their cooperation.

**Administrative design**

Authorized permission was obtained by submission of an official letter from the Faculty of Nursing to the responsible authorities of the study settings to obtain permission for data collection.

**Ethical Considerations**

This study takes the ethical committee agreement on 31/1/2018 with the code number (6/2-2018) by the ethics committee of the scientific research of the Faculty of Nursing at Port Said University. Oral informed consent was obtained from each participant to agree to participate in the study before conducting the interview. They were given a verbal description of

the aims of the study, the benefits, and non-participation or withdrawal rights at any time without giving any reasons. The participants were informed that their participation in this study was voluntary, the anonymity of each participant was protected by the allocation of code number for each one. The participant was assured about the confidentiality of the information gathered and its use only for their benefits and for the study.

**Statistical analysis**

Data entry and statistical analysis were done using SPSS 23.0 statistical software package. Descriptive statistics included frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables, one's descriptive statistics, and frequencies were run to examine normality and determine if any skewness or kurtosis occurred. Parametric and non-parametric inferential statistics as (paired t-test, two related sample tests, and Chi-square test) were used. For all of the statistical tests done, the threshold of significance was fixed at the 5% level (P-value).

## III. RESULTS

**Table 1.** Shows that53.2 % of the study group are males, 28.7% of aged from 15 > 25 years, 66.7% were single, 71.3% of the study group had acquired physical disability, 79.6% had disability more than 6 months, 40.3% use assisted devices, and 37.5% follow up in the external; clinics.

**Table 2**. Reveals that 73.1% were agreeing with the item which said that feel okay when I stop in special places for disability regularly and 63.0% of the study group reported disagreement in the item which stated that found more special parking for disabled people. Moreover, there were statistically significant differences between the outside environment of the buildings and the study group's opinions at p value<0.001*.

**Table 3**. Demonstrates that64.4% of the study group agreed with the point told that I faced some problem during moving on building land. While 46.8% of the study group disagreed with the item said that bathing side raise on the building is founded. Furthermore, there were statistically significant differences between the inside environment of the buildings and the study group's opinions at p value<0.001*.

**Table 4.** Illustrates 65.2% of the study group was satisfied concerning the total outside environment with a total mean score 49.85 ± 10.67 and 67.2% of the study group has an unsatisfactory score in respect to the inside environment with a total mean score 49.85 ± 10.67. Moreover, 57.2% of the study group has an unsatisfactory total score for both inside & outside environment, 42.8% get a satisfactory total score.

**Table 5**. Presents that there were highly statically significant differences between causes of disability, length of disability, ambulation device, and place of visit of the study group with their overall total scores of satisfactions where p=0.043,0.013,0.003 & 0014 respectively.

**Table 6.** Shows the multivariate logistic regression for factors affecting overall score. As illustrates in the table, people who use a wheelchair and place of visit for both external and internal departments were the most predictor variable at p ≤ 0.05. None of the other variables such as type disability and length of disability had a significant effect on the overall score.

**Table (1): Distribution of the study group according to demographic data (n=216)**

| Items | No. | % |
|---|---|---|
| **Gender** | | |
| Male | 115 | 53.2 |
| Female | 101 | 46.8 |
| **Age** | | |
| 10>15 | 29 | 13.4 |
| 15 > 25 | 62 | 28.7 |
| 25 > 35 | 57 | 26.4 |
| 35 > 45 | 45 | 20.8 |
| 45 ≥55 | 23 | 10.6 |
| Min. – Max. | 40.0 – 89.0 | |

| | | |
|---|---|---|
| Mean ± SD. | 28.36 ± 12.97 | |
| **Marital state** | | |
| Married | 52 | 24.1 |
| Single | 144 | 66.7 |
| Divorced | 15 | 6.9 |
| Widow | 5 | 2.3 |
| **Cause of disability** | | |
| Hereditary | 62 | 28.7 |
| Acquired | 154 | 71.3 |
| **Length of disability** | | |
| Less than 6 months | 44 | 20.4 |
| More than 6 months | 172 | 79.6 |
| **Ambulation device** | | |
| With the assisted device | 87 | 40.3 |
| Without assisted device | 79 | 36.6 |
| Wheelchair | 50 | 23.1 |
| **The place of visit in the health setting** | | |
| External clinic | 81 | 37.5 |
| Internal department | 58 | 26.9 |
| Both | 77 | 35.6 |

**Table (2): Distribution of the study group according to their opinions about the outside environment of the health settings (n = 216)**

| Items | Agree | | Neutral | | Disagree | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| **Building main entrances** | | | | | | |
| Exposure to effort when inter the inlet of building | 129 | 59.7 | 16 | 7.4 | 71 | 32.9 |
| The hospital or center have more inlet on building | 134 | 62.0 | 19 | 8.8 | 63 | 29.2 |
| **Gardens & open spaces** | | | | | | |
| Found green garden on the building. | 124 | 57.4 | 23 | 10.6 | 69 | 32.0 |
| Exposure to the problem in movement on the green garden | 100 | 46.3 | 18 | 8.3 | 98 | 45.4 |
| exposure to dangerous when inter or outer from the green garden | 80 | 37.1 | 21 | 9.7 | 115 | 53.2 |
| **Car parking** | | | | | | |
| Found special parking for disabled people | 57 | 26.4 | 23 | 10.6 | 136 | 62.9 |
| Exposure effort from parking to building | 130 | 60.2 | 17.0 | 7.9 | 69 | 31.9 |
| Found more special parking for disabled people | 60 | 27.7 | 20 | 9.3 | 136 | 63.0 |
| Feel people with disabilities receive too many special privileges. | 120 | 55.6 | 29 | 13.4 | 67 | 31.0 |
| Found a handicapped parking permit | 136 | 62.9 | 40 | 18.5 | 40 | 18.5 |
| It angers me when I see non-disabled people park in handicapped spaces. | 115 | 53.2 | 43.0 | 20.0 | 58 | 26.8 |
| Feel okay when I stop in special places for disability regularly | 158 | 73.1 | 31 | 14.4 | 27 | 12.5 |
| Feel it is okay to park in a handicapped space if there isn't any place nearby to park. | 121 | 56.0 | 52 | 24.0 | 43.0 | 20.0 |
| I feel it's okay when another person helps me in the general parking | 152 | 70.4 | 27 | 12.5 | 37 | 17.1 |
| Feel it is unethical to park in a handicapped parking space. | 132 | 61.1 | 35 | 16.2 | 49 | 22.7 |

$\chi^2$, p: $\chi^2$ and p values for **Chi-square test***: Statistically significant at $p \leq 0.05$

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**Table (3): Distribution of the study group according to their opinions about the inside environment of the buildings (n = 216)**

| | Agree | | Neutral | | Disagree | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| **Main buildings entrances** | | | | | | |
| I faced some problem when inter head of the section | 122 | 56.5 | 14 | 6.5 | 80 | 37.0 |
| I faced some problem when inter or outer from outpatient | 115 | 53.2 | 16 | 7.4 | 85 | 39.4 |
| I faced some problem when inter or outer from label room | 102 | 47.2 | 20 | 9.3 | 94 | 43.5 |
| Found special road for handicapped people on building | 111 | 51.4 | 18 | 8.3 | 87 | 40.3 |
| I faced some problem in user of this road | 118 | 54.6 | 25 | 11.6 | 73 | 33.8 |
| **Horizontal accessibility** | | | | | | |
| I faced effort during moving on building used | 121 | 56 | 16 | 7.4 | 79 | 36.6 |
| The character of the road is not enough for moving | 112 | 51.8 | 25 | 11.6 | 79 | 36.6 |
| **Vertical accessibility** | | | | | | |
| Ladder side rise on the building is founded | 124 | 57.4 | 20 | 9.3 | 72 | 33.3 |
| I faced effort when used of the ladder | 124 | 57.4 | 28 | 13.0 | 64 | 29.6 |
| I faced the effort of using the elevator | 84 | 38.9 | 32 | 14.8 | 100 | 46.3 |
| I faced effort during moving in the elevator | 89 | 41.2 | 27 | 12.5 | 100 | 46.3 |
| I faced a problem when interring or outing from the toilet of the building | 116 | 53.7 | 14 | 6.5 | 86 | 39.8 |
| Bathing side raises on the building is founded | 96 | 44.4 | 19 | 8.8 | 101 | 46.8 |
| I faced effort in moving and turning on the bathroom | 136 | 63.0 | 16 | 7.4 | 64 | 29.6 |
| The floor is not suitable for handicapped pt. on building | 118 | 54.6 | 26 | 12.1 | 72 | 33.3 |
| I faced some problem during moving on building land | 139 | 64.4 | 8 | 3.7 | 69 | 31.9 |
| I faced effort on expanding for building | 117 | 54.2 | 9 | 4.1 | 90 | 41.7 |
| I faced some problem during the opening or closing of the door on the building | 119 | 55.1 | 20 | 9.3 | 77 | 35.6 |

$\chi^2$, p: $\chi^2$ and p values for **Chi-square test***: Statistically significant at $p \leq 0.05$

**Table (4): Distribution of the study group according to the level of satisfaction (n = 216).**

| | Unsatisfactory (*barriers) | | Satisfactory (* facilities) | | Total score |
|---|---|---|---|---|---|
| | No. | % | No. | % | Mean ± SD. |
| **The outside environment of buildings** | | | | | |
| Main entrances | 64 | 29.6 | 152 | 70.4 | 5.98 ± 1.57 |
| Gardens & open spaces | 80 | 37.1 | 136 | 62.9 | 9.50 ± 2.37 |
| Car parking | 72 | 33.3 | 144 | 66.7 | 31.14 ± 4.69 |
| **Total score** | **87** | **34.8** | **163** | **65.2** | **46.62 ± 5.81** |
| **The inside environment of buildings** | | | | | |
| Main buildings entrances | 126 | 58.3 | 90 | 41.7 | 13.76 ± 4.64 |
| Horizontal accessibility | 112 | 51.9 | 104 | 48.1 | 5.30 ± 2.24 |
| Vertical accessibility | 85 | 39.4 | 131 | 60.6 | 12.09 ± 2.99 |
| Toilets | 118 | 54.6 | 98 | 45.4 | 8.18 ± 2.43 |
| Finishing work | 193 | 89.4 | 23 | 10.6 | 5.04 ± 2.18 |
| Doors and Spaces | 113 | 52.3 | 103 | 47.7 | 5.48 ± 2.26 |
| **Total score** | **168** | **67.2** | **82** | **32.8** | **49.85 ± 10.67** |
| **A total score for inside & outside** | **143** | **57.2** | **107** | **42.8** | **96.47 ± 11.91** |

$\chi^2$, p: $\chi^2$ and p values for **Chi-square test***: Statistically significant at $p \leq 0.05$

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**Table (5): Relationship between socio-demographic data of the study group and their satisfaction level regarding facilities provided (n = 216).**

| | Satisfactory (n = 92) | | Unsatisfactory (n = 124) | | $\chi^2$ | p |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | | |
| **Gender** | | | | | | |
| Male | 59 | 64.1 | 64 | 51.6 | 0.283 | 0.595 |
| Female | 33 | 35.9 | 60 | 48.4 | | |
| **Age** | | | | | | |
| 10>15 | 22 | 23.9 | 37 | 29.8 | 5.744 | $^{MC}$p= |
| 15 > 25 | 30 | 32.6 | 31 | 25.0 | | 0.429 |
| 25 > 35 | 20 | 21.7 | 28 | 22.6 | | |
| 35 > 45 | 10 | 10.9 | 22 | 17.7 | | |
| 45≥55 | 10 | 10.9 | 6 | 4.9 | | |
| **Marital state** | | | | | | |
| Married | 27 | 29.3 | 33 | 26.6 | 2.708 | $^{MC}$p= |
| Unmarried | 39 | 42.4 | 45 | 36.3 | | |
| Divorced | 4 | 4.3 | 8 | 6.4 | | 0.617 |
| Widow | 1 | 1.1 | 5 | 4.1 | | |
| Student | 21 | 22.8 | 33 | 26.6 | | |
| **Causes of disability** | | | | | | |
| Hereditary | 31 | 35.7 | 34 | 27.4 | 4.112* | 0.043* |
| Acquired | 61 | 66.3 | 90 | 72.6 | | |
| **Length of disability** | | | | | | |
| Less than 6 months | 14 | 15.2 | 37 | 29.8 | 6.166* | 0.013* |
| More than 6 months | 78 | 84.8 | 87 | 70.2 | | |
| **Ambulation device** | | | | | | |
| With the assisted device | 43 | 46.7 | 41 | 33.1 | 11.55 | 0.003* |
| Without assisted device | 35 | 38.1 | 48 | 38.7 | 2* | |
| Wheelchair | 14 | 15.2 | 35 | 28.2 | | |
| **Place of visit in the health setting** | | | | | | |
| External clinic | 36 | 39.1 | 29 | 23.4 | 8.603* | 0.014* |
| Internal department | 27 | 29.4 | 33 | 26.6 | | |
| Both | 29 | 31.5 | 62 | 50.0 | | |

$\chi^2$, p: $\chi^2$ and p values for **Chi-square test***: Statistically significant at $p \leq 0.05$
$^{MC}$P: p-value for **Monte Carlo** for Chi-square test

**Table (6): Multivariate logistic regression for factors affecting the overall score of satisfaction level among the study group (n = 250).**

| | Sig. | OR | 95% CI | |
|---|---|---|---|---|
| | | | LL | UL |
| **Causes of disability** | 0.065 | 1.725 | 0.966 | 3.082 |
| **Length of disability** | 0.069 | 0.502 | 0.239 | 1.055 |
| **Ambulation device** | | 0.019* | | |
| Without assisted device ® | | | | |
| With the assisted device | 0.417 | 0.784 | 0.436 | 1.411 |
| Wheelchair | 0.035* | 2.259 | 1.058 | 4.821 |
| **Place of visit** | | 0.042* | | |
| External clinic ® | | | | |
| Internal department | 0.484 | 1.281 | 0.640 | 2.563 |
| Both | 0.013* | 2.204 | 1.185 | 4.101 |

OR: Odd's ratio CI: Confidence interval LL: Lower limit UL: Upper Limit

*: Statistically significant at $p \leq 0.05$

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## IV. DISCUSSION

People with disabilities may face challenges in accessing healthcare services, despite their greater need, which can contribute to poorer health. Services and/or transport may be physically inaccessible to people with certain impairments. People with disabilities may experience stigma and discrimination at the point of care, which can discourage them from attending. The skills and experience of healthcare professionals may be inadequate to provide a quality service (e.g., difficulties communicating with people with hearing or intellectual impairment). The cost of seeking services may be prohibitive to people with disabilities, both on account of on average higher levels of poverty as well as the additional costs incurred when seeking care (e.g., need for accessible transport or for a career to attend). As a result of these different barriers, people with disabilities may have poorer access to healthcare services, despite their higher need ***(Bright and Kuper, 2018).***

This study aimed to assess the environmental barriers and facilities at health care settings as perceived by physically disabled people. Regarding environmental facilities offered to the physically disabled persons in the current study from their point of view, the results adduced that more than two-thirds of the study group were satisfied concerning main building entrances, slightly less than two-thirds were convinced about gardens and open spaces and two-thirds were contented regarding car parking. Moreover, nearly two-thirds of the study group were satisfied concerning the outside environment. Moreover, less than two-thirds of the study group were satisfied with vertical accessibility as a part of the internal environments of the health care services.

This satisfaction of the study group regarding environment facilities might be due to the efforts exerted by the Egyptian Ministry of Health and Population in designing health institutions suitable for patients with special needs, especially the physically disabled. Furthermore, it supports the notion that the general Egyptian population is highly respectful to the rights of those with physical disabilities such as maintain their parks and gardens. Also, religion has an important role where the Islamic and Christian religion calls for better treatment and care for people with disabilities and the preservation of their rights and property.

This result was supported by ***(Amor, Abu Kamel, Qtait, Yagi& Amro 2018***) in the study entitled Factors Affect Patients Satisfaction in Emergency Departments in Palestine, which depicted that physically disabled persons were highly satisfied regarding hospital main entrance. Besides, ***(Talib, Ghani, Ismail & Salleh, 2016)*** in the study about" The Provision of the Disabled Facilities in Public Hospitals", revealed that most of the hospitals were provided with acceptable disabled facilities like entrance and parking area free from any obstructions.

This finding was in disagreement with a cross-sectional study conducted by ***(Alkawai and Alowayyed, 2017)*** entitled" Barriers in accessing care services for physically disabled in a hospital setting in Riyadh, Saudi Arabia", which demonstrated that over 52% were unsatisfied with parking. Moreover, the study regards assessment on the accessibility of public buildings and their facilities to the disabled in Ghana by ***(Kportufe, 2017),*** found out that above 78 % shows that no car parks and access routes to and around the buildings. Also, ***Institute for Democratic Governance (2011)*** in Ghana adduced that health facilities in some districts do not have accessible structures and environments for people with disabilities, particularly for wheelchair users.

Furthermore, the study carried out by ***(Tchiakpe, Nartey, Owusu, Cofie, & Ankrah, 2018)*** which termed" Building Accessibility of Visually Impaired Persons in two Districts in the Ashanti Region of Ghana", elaborated that building modification measures were inadequate and most buildings in the two districts surveyed were not friendly to the visually impaired persons. Moreover, ***(Ahmad, 2013)*** conducted a study about" Health care access and barriers for the physically disabled in rural Punjab, Pakistan", accentuated that both males and females with disabilities were dissatisfied regarding the approach road/entrance of health outlets/hospital ensuring access.

Regarding barriers faced by the study group, the present findings showed that more than half were unsatisfied about internal main buildings entrances, slightly more than half unsatisfied concerning Horizontal accessibility, nearly two-fifths were unsatisfied about vertical accessibility, more than half unsatisfied about toilets condition, the majority was dissatisfied with finishing work and slightly more than half were not satisfied regarding doors and spaces. Moreover, slightly more than two-thirds of the study group were unsatisfied with the inside environment of buildings. Additionally,

overall, the level of dissatisfaction about environmental facilities (internal-external) among the study group was more than half.

These findings were supported by a study carried out by ***(Badu, Baffour, &Opoku, 2016)*** entitled" Access Barriers to Health Care among People with Disabilities in the Kumasi Metropolis of Ghana, which concluded that different access barriers among different disability types and socio-demographic groups. Also, the study by ***(Venkata, &Gudlavalleti, 2018)*** about" Challenges in Accessing Health Care for People with Disability in the South Asian Context", indicated that People with disability (PWD) face significant challenges to accessing health care in the region.

In the same vein, ***Hees, Cornielje, Wagle, &Veldman (2014)*** in the study named" Disability Inclusion in Primary Health Care in Nepal: An Explorative Study of Perceived Barriers to Access Governmental Health Services", revealed that several barriers including physical environmental barriers, financial and personal barriers were presented and affected access to primary healthcare. Additionally, the study conducted by ***(Visagie, Eide, Dyrstad, Mannan & Swartz 2016)*** entitled "Factors related to environmental barriers experienced by persons with and without disabilities in diverse African settings", elaborated that individuals with disabilities face more severe environmental barriers than non-disabled individuals in each of the four-country subsamples.

Also, ***(Alkawai, &Alowayyed, 2017)*** mentioned that the majority of patients with a physical disability require assistance and cannot move around independently in the healthcare facilities. Nearly half of these patients face several challenges in accessing health care services and are unsatisfied with the services received. Patients with a physical disability who are wheel-chair bound have a lesser degree of satisfaction than those who are not wheel-chair bound.

In the same respect ***(Ali, Scior, Ratti, Strydom & King 2013***) in the study called; Discrimination and other barriers to accessing health care: Perspectives with mild and moderate intellectual disability and their careers, London, indicated that inequity in accessing health care for people with disability is a global issue- in general, people with disabilities have poorer health care access. Moreover, the study by **(Tomlinson, Swartz, Officer, Chan & Rudan, 2009***)* entitled Research priorities for the health of people with disabilities, emphasized stated that there is international evidence that people with disabilities face distinctive barriers when accessing health care services.

Furthermore, the ***World Report on Disability, published in 2011 by the World Health Organization and the World Ban***k, assed a wide range of evidence confirming that, across the globe, disabled people have poorer access to health care and poorer health outcomes than non-disabled people. Also***, (Gulley, Rasch, and Chan, 2011)*** who conducted a study entitled; relationships among chronic conditions, disability, and health services, concluded that people with disabilities experienced much greater health care access problems despite the greater need for health care services. Also, ***(Mudrick, Breslin, Laing, & Yee, 2012)*** in the study Physical accessibility in primary health care settings, summarized that there is a large and growing literature that documents that people with disabilities experience barriers when accessing primary healthcare.

Also, ***Saulo, Walakira, &Darj, (2012)*** in the study entitled; Access to healthcare for disabled persons. How are blind people reached by HIV services? stated that disabled persons have been discriminated against in health care services and are a globally marginalized group Likewise, a study entitled "Access and coordination of health care service for people with disabilities, by ***(Hwang et* al., *2009)*** demonstrated that people with disabilities face many barriers to accessing quality primary preventative services, ranging from structural to procedural barriers. In the same vein, ***Vergunst. (2016),*** who carried out a study on; Access to Health Care for Persons with Disabilities in rural Madwaleni, Eastern Cape, South Africa, concluded that people with disabilities had multiple barriers including physical barriers, attitudinal barriers, and communication barriers. Also, added that persons without disabilities living in households with persons with disabilities did not, however, experience more barriers to health care than did those in households without disabilities.

Furthermore, the study by (***Hussey, MacLachlan, & Mji, 2016)*** termed; Barriers to the Implementation of the Health and Rehabilitation Articles of the United Nations Convention on the Rights of Persons with Disabilities in South Africa, adduced that six main categories of barriers were identified. Attitude barriers including stigma and negative assumptions about persons with disabilities were seen as an underlying cause and influence on all of the other categories; which included political, financial, health systems, physical, and communication barriers.

Moreover, the study carried out by ***(Baart, & Taaka, 2017)*** about "Barriers to Healthcare Services for People with Disabilities in Developing Countries: A Literature Review, clarified that there appeared to be 7 main barriers - 4 related to the demand side i.e., about the individual seeking healthcare services, and 3 barriers on the supply side i.e., on healthcare provision. These are: 1) Lack of information; 2) Additional costs of healthcare; 3) Limited mobility; and4) Stigmatization, on the demand side; while on the supply side, 5) Staff attitudes; 6) Communication barriers; and, 7) Inaccessible facilities.

Results of the current study illustrated that there was a significant relationship between a wheelchair-bound and being unsatisfied with hospital services and also wheelchair strongly affected the dissatisfaction level of the study group. Moreover, the place of visit (both internal& external) related significantly with the dissatisfaction level of the study group. Also, the findings revealed that the total mean unsatisfactory score of the study group was significantly associated with the use of a wheelchair, length of disability. This result was supported by ***(Alkawai, &Alowayyed, 2017)*** which found out that, there was a significant relationship between being wheel-chair bound and being unsatisfied with hospital parking, reception and appointment services, elevators, and physiotherapy. Also, stated that there was a significant relationship between the disability period and being unsatisfied.

Additionally, the commission study by ***(Iezzoni, Davis, Soukup, & O'Day, 2002)*** about" satisfaction with quality and access to health care among people with disabling conditions", accentuated that persons with disabilities generally had significantly higher adjusted odds ratios of dissatisfaction.

## V. CONCLUSION

Upon the aforementioned results, it can be concluded that nearly two-thirds of the study group were satisfied concerning the outside environment while slightly more than two-thirds were satisfied with the inside environment of buildings. Also, more than half total of the physically disabled persons was dissatisfied both inside and outside environment; there were statistically significant differences between the study group's opinions about outside & inside environment of the health settings.

## VI. RECOMMENDATION

**1.** The Egyptian Ministry of Health should pay great attention to the internal and external environment for the physically disabled people through reviewing and changing building codes so that it includes the necessary acts that legislate the design requirements for this group of people.

**2.** Holding seminars that aim at helping the Egyptian architect identify the problem, suggest a way of solving it, and be aware of the benefits to the society of solving this problem.

**3.** There is a need for awareness-raising around issues on removing and breaking physical barriers in society and the provision of an accessible physical environment for physically disabled persons. This should be the responsibility of every citizen in the country, and the Egyptian Federation of the Disabled should team up with state institutions responsible for the dissemination of information to reach a large proportion of the populace.

**4.** Using effective tools as media and brochures to help the physically disabled people recognize their community resources.

**5.** There is the need to set up a regulatory body that will have oversight responsibility of all public buildings constructed in the country to make sure they are accessible and suitable for physically disabled persons before sanction or approval is given for final construction.

**6.** Replication of similar specific studies using large probability samples and different settings (including governmental and nongovernmental health care settings) is highly recommended.

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