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## Internal Physical Environment of Health Care Facilities and Services Provided for Elderly in Port Said, Egypt.

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**Abstract: Background:** The increasing number of elderly in Egypt is a challenge to health care facilities that should be age-friendly. This study described the extent to which both primary health care centers and hospitals meet the criteria of age-friendly health care in Port-Said, Egypt.

**Methods:** This cross-section descriptive study included all health facilities in Port-Said governorate (32 primary health care centers, 11 governmental and 8 private hospitals). In each facility data was collected about clinical and promotional health services provided to elderly. Physical environment was evaluated based on toolkit developed by the World Health Organization.

**Results:** All health facilities are served by public transportation and have steps at entrance and measure blood pressure. Reception counter was near entrance in 80% of facilities. Corridors were satisfactory in about 70% of facilities. In about 60% of facilities there is an age-friendly ramp at entrance and toilet near waiting area. Dedicated disabled persons parking, accessible shower and eating outlet in building were observed in many hospitals but in none of primary health care centers. Obesity assessment, blood glucose and hemoglobin estimations as well as visual assessment were reported by about 45% to 65% of facilities. Counseling about tobacco hazards, healthy eating, physical activity, sun exposure/avoidance, oral health care, injury/fall prevention and poly-pharmacy were reported by about 40% to 69% of health facilities.

**Conclusions:** Health facilities especially primary health care centers of Port-Said governorate need to consider seriously their physical environment and services to be age-friendly.

**Key words:** Primary health care – Hospitals – Age-friendly – Signage.

### INTRODUCTION

The world's population is ageing and elderly population is growing at a faster rate all over the world. In 2017, one in eight people worldwide was aged 60 years or over. They are projected to be one in six and one in five in 2030 and 2050; respectively (United Nations, 2017). Egyptian population aged 60 and older is projected to increase dramatically over the next decades, from 6.7% in 2017 to 20.8% in 2050 (CAPMAS, 2017; Sweed, 2009, United Nations, 2017).

Every country faces important challenges to ensure their health system is prepared to deal with this demographic change (Acosta-Benito et al, 2018). Health care systems will have to accommodate the needs of the older population. Elderly are the largest users of the health care system. However, current practices are unfriendly (Chiou & Chen, 2009). Seniors need regular health care including the monitoring of blood pressure, early detection and treatment of diseases, monitoring of medications (adherence and side effects), monitoring of nutritional status and the promotion of healthy lifestyles. Older persons often have multiple pathologies and poly-pharmacy is common (Mona Ageing & Wellness Centre, 2011).

The World Health Organization has recognized the critical role primary health care centers (PHCCs) play in the health of older people worldwide and the need for these centers to be accessible and adapted to the needs of older populations (WHO, 2004).

These centers should be equitable, inclusive, safe and supportive to promote health and delay the onset of disease and disabilities (Grewal et al, 2017).

PHCCs are responsible for most of the preventive and curative services. Older people account for a sizeable proportion of PHCC patients and this proportion will increase as population age and chronic disease rates rise. Older people face many physical barriers to reaching the care facility. Many PHCCs are unfriendly to frail older people or those with disabilities. Doors and corridors are narrow or too small to accommodate wheelchairs and assistive devices, such as walkers (WHO, 2004).

Acosta-Benito et al (2018) concluded that physical barriers, clinical assistance, patient information, prevention and health promotion, social and community activities are the principal factors implicated in age-friendly PHCC development. Inside the health facilities physical elements may have a negative influence in the adaptation of the environment for the elderly e.g. inadequate signage (in size, location and message), absence of handrails in the corridors or non-adapted waiting areas, among others (Neville et al, 2016).

Older people account for a large proportion of hospitalization and longer stay. Because of accumulated multi-morbidity and frailty, older people are at much greater risk of hospital-related harm, including falls, pressure

injuries, and adverse drug events (Australian Institute of Health and Welfare, 2007; Covinsky et al, 2011).

Accessible, comprehensive and responsive health care will enable elderly to remain active and independent as long as possible. However, health care settings including PHCCs and hospitals are not ideally designed to care for older persons in many aspects. These settings usually are busy with highly specialized professionals working individually at rapid pace and the services are traditionally delivered in a fragmented and reactive manner. They lack continuity and have inadequate physical environment (Chiou, 2019). While there is increasing interest in the application of Senior Friendly Hospital models in developed countries, relatively little has examined specific issues arising in Egypt. The lack of knowledge and evidences is obvious in this area. In Egypt there are no special health care services for the elderly. To date there has been no study evaluating whether health services are sufficiently towards the elderly in Egypt. Assessment of the age-friendliness of services provided is critical in optimizing the care provided.

## AIM OF THE STUDY

The present study aims to describe the health services available for elderly in health facilities and their physical environment and to compare between PHCCs and hospitals in Port-Said, Egypt.

## SUBJECTS AND METHODS

### *Research design:*

This is descriptive cross-section research design with analytic component.

### *Study Setting:*

This study was carried out in Port-Said governorate, Egypt during the August and September, 2018. Port-Said was purposively chosen as it is one of the first governorates in which the new health insurance system will be applied. Also it is less populated with small area and has a qualified health infrastructure.

This study covered all the health facilities in Port-Said (32 primary health care centers, 11 governmental hospitals and 8 private hospitals).

### *Tool of data Collection:*

The data was collected using modified age-friendly health care centers toolkit developed by the World Health Organization (2008) and applied in previous studies in different countries (Alhamdan et al, 2015, ahmadi et al, 2015, Farid et al, 2017, Tariq and Lafta, 2018). The toolkit checklist comprised of the following parts:

**Part I:** list of questions (answerable by yes or no) related to clinical services and health assessments offered for elderly.

**Part II:** Evaluation of health and lifestyle counseling offered.

**Part III:** Factors indicative of the ease of use of the centers by older adults

**Part IV:** Summary of signage at the health care centers. The list covered items related to accessibility and internal physical infrastructure, characteristics of signage, as well as clinical and promotive services provided to elderly.

### *Methods:*

Data was collected by the researcher through direct observations and interview with directors of each health facility to complete the checklist of the age-friendly health care centers toolkit.

### *Ethical consideration:*

The study proposal was approved by the Research Ethics Committee, Faculty of Nursing, Port-Said University. Official approval of the local Health Directorate and all health facilities were obtained.

### *Data analysis:*

Data was analyzed using SPSS program version 16. Data was presented as number and percent. Chi-squared or Fisher's exact test was used for testing the significant difference between hospitals and PHCCs.  $P \leq 0.05$  was considered statistically significant.

## RESULTS

Table 1 shows that all health facilities are served by public transportation and have steps at entrance. Reception counter was near entrance in 80% of facilities. Corridors were lit/ventilated, wide enough for wheelchair and free of obstruction in about 70% of facilities. In about 60% of facilities there is a ramp at entrance, entrance is wide and accessible to wheelchair users, furniture and fittings have low fall/injury risk and toilet near waiting area. Dedicated disabled persons parking, accessible shower and eating outlet in building were observed in 36% to 58% of hospitals but in none of primary health care centers.

Table 2 shows that in about 70% of health facilities the letter sizes of signage were appropriate and staffs were easily identified. Signage are non-glare, characters contrast with background, familiar picture and signs displayed at eye level were observed in 40% to 59% of health facilities.

Table 3 reveals that all health facilities measure blood pressure. However, obesity assessment, blood glucose and hemoglobin estimations as well as visual assessment were reported by about 45% to 65% of facilities.

Counseling about tobacco hazards, healthy eating, physical activity, sun exposure/ avoidance, oral health care, injury/fall prevention and poly-pharmacy were reported by about 40% to 69% of health facilities (table 4).

**Table 1: Accessibility of health care facilities for elderly in Port- Said.**

Accessibility	T o t a l N (%)	PHCC (32) N (%)	Hospitals (19) N (%)	P-value
Served by public transport	51 (100)	32 (100)	19 (100)	-
Dedicated disabled persons parking	8 (15.7)	0	8 (42.1)	≤0.001
Steps at entrance	51 (100)	32 (100)	19 (100)	
Ramp at entrance	31 (60.8)	21 (65.6)	10 (52.6)	0.4
Entrance wider than 900 mm	31 (60.9)	17 (53.1)	14 (73.7)	0.1
Entrance accessible to wheel chair users	30 (58.8)	19 (59.4)	11 (57.9)	0.9
Emergency exits easily identifiable and accessible	25 (49.0)	13 (40.6)	12 (63.2)	0.1
Public phone near entrance	0	0	0	-
Reception counter near entrance	41 (80.4)	25 (78.1)	16 (84.2)	0.7
Room layout logical	24 (47.1)	10 (31.2)	14 (73.7)	0.003
Door widths greater than 900 mm	24 (47.1)	17 (53.1)	7 (36.8)	0.3
Seating arrangements comfortable	30 (58.8)	14 (43.8)	16 (84.2)	0.005
Floor non-slippery and well maintained	22 (43.1)	11 (34.4)	11 (57.9)	0.1
Furniture and fittings have low fall/injury risk	32 (62.7)	19 (59.4)	13 (68.4)	0.5
Availability of spare wheelchair	25 (49.0)	11 (34.4)	14 (73.7)	0.007
Corridors and rooms well lit and ventilated	36 (70.6)	23 (71.9)	13 (68.7)	0.8
Corridors wide enough for wheelchair	36 (70.6)	22 (68.8)	14 (73.7)	0.7
Corridors free of obstructions	35 (68.8)	23 (71.9)	12 (63.2)	0.5
Hand rails or grab bars in corridors	25 (49.0)	13 (40.6)	12 (63.2)	0.1
Toilets near waiting area	30 (58.8)	20 (62.5)	10 (52.6)	0.5
Toilets wheelchair accessible	13 (25.5)	1 (3.1)	12 (63.2)	≤0.001
Grab bars around toilet	11 (21.6)	4 (12.5)	7 (36.8)	0.08
Fittings easy to use and accessible	24 (47.1)	13 (40.6)	11 (57.8)	0.2
Accessible shower	11 (21.6)	0	11 (57.9)	≤0.001
Eating outlet in building	7 (13.7)	0	7 (36.8)	≤0.001

**Table 2: Summary of signage at health care facilities in Port- Said.**

Signage	T o t a l N (%)	PHCC N (%)	Hospitals N (%)	P-value
Characters and backgrounds are non-glare	24 (47.1)	17 (53.1)	7 (36.8)	0.3
Characters contrast with background	23 (45.1)	10 (31.2)	13 (68.4)	0.01
Visual display is simple and easy to understand	11 (21.6)	5 (15.6)	6 (31.6)	0.3
Colors used, and used effectively	21 (41.2)	11 (34.4)	10 (52.6)	0.2
Familiar pictures used where possible	30 (58.8)	19 (59.4)	11 (57.9)	0.9
Braille signage used	0	0	0	-
Tone of signage is welcoming	5 (9.8)	0	5 (26.3)	0.005
Signs displayed at eye level	21 (41.2)	11 (34.4)	10 (52.6)	0.3
Letter sizes appropriate	36 (70.6)	20 (62.5)	16 (84.2)	0.1
Staff easily identified using name badges and boards	36 (70.6)	20 (62.5)	16 (84.2)	0.1
Name board with all staff and job title	16 (31.4)	4 (12.5)	12 (63.2)	≤0.001

**Table 3: Clinical services and health assessments offered at the health care facilities for elderly in Port Said.**

Clinical services	T o t a l N (%)	PHCC N (%)	Hospitals N (%)	P-value
Blood pressure measurement	51 (100)	32 (100)	19 (100)	-
Obesity assessment	24 (47.1)	13 (40.6)	11 (57.9)	0.2
Cholesterol testing	14 (27.5)	5 (15.6)	9 (47.4)	0.014
Cardiovascular disease assessment	19 (37.3)	8 (25.0)	11 (57.9)	0.019
Blood glucose estimation	30 (58.8)	14 (43.8)	16 (84.2)	0.005
Hemoglobin estimation	33 (64.7)	14 (43.8)	19 (100)	≤0.001
Mammography	3 (5.9)	0	3 (15.8)	0.05
Colorectal cancer screening	0	0	0	-
Prostate cancer screening	5 (9.8)	0	5 (26.2)	0.005
Vision assessment	31 (60.8)	20 (62.5)	11 (57.9)	0.7
Hearing assessment	15 (29.4)	8 (25.0)	7 (36.8)	0.4
Annual comprehensive geriatric assessment	6 (11.8)	4 (12.5)	2 (10.5)	1.0
Pneumococcal vaccination	21 (41.2)	21 (85.6)	0	≤0.001
Seasonal influenza vaccination	11 (21.6)	0	11 (57.9)	≤0.001

**Table 4: Health and lifestyle counseling offered at the health care facilities for elderly in Port Said.**

Health and lifestyle counseling	T o t a l N(%)	P H C C N(%)	Hospitals N(%)	P-value
Tobacco hazards	29(56.9)	20(62.5)	9(47.4)	0.3
Drug and alcohol use	17(33.3)	8(25.0)	9(47.4)	0.1
Healthy eating	35(68.6)	22(68.8)	13(68.4)	0.98
Physical activity	22(43.1)	17(53.1)	5(26.3)	0.1
Sun exposure/avoidance	33(64.7)	25(78.1)	8(42.1)	0.009
Oral health care	22(43.1)	15(46.9)	7(36.8)	0.5
Injury/fall prevention	23(45.1)	18(56.2)	5(26.3)	0.04
Poly-pharmacy	21(41.2)	12(37.5)	9(47.4)	0.5

## DISCUSSION

Older persons are frequent users of health care facilities due to the multiplicity of chronic diseases. Health systems should be better organized around the needs and preferences of older people to strengthen universal and integrated health care and people-centered health services (United Nations, 2013; WHO, 2019). As the Egyptian population ages, health care system must embrace significant changes to meet the demands of elderly population, otherwise the quality of care delivered to them will deteriorate. These changes should be included within the new health insurance program to be implemented in the near future.

Previous studies in many countries reported that age-friendly physical internal environment may have some influence in health results. Several factors that may hinder health care of the elderly have been found related to physical difficulties in accessing to the health centers, in their structure and in the transmission of information (Peterson et al, 2010; Woo et al, 2013; Neville et al, 2016; Wang 2017).

In the current study all studied health facilities are served by public transportation and have steps at entrance. It was reported that older adults who live near the health facility are more likely to have preventive hospitalization (Parchman and Culler, 1999). Furthermore, access to health care was found to be associated with better self-rated health of elderly (Lehning et al, 2014).

This study revealed that all health facilities are served by public transportation and have steps at entrance. Also the majority of facilities have reception counter near entrance, corridors were lit/ventilated, wide enough for wheelchair and free of obstruction, toilet near waiting area as well as there is a ramp at entrance, entrance is wide and accessible to wheelchair users, furniture and fittings have low fall/injury risk. A study in Saudi Arabia revealed that PHCCs lack of public transport, the presence of steps, ramps, and internal stairs, and the lack of handrails. However, the entrance to all centers was wide (Alhamdan et al 2015). In Dubai about 82% of physical environment properties of the PHCCs are matching the WHO recommendations. The two major defects were inaccessibility by public transportations and lack of grab bar (Farid et al, 2017). An Iraqi study revealed that all PHCC in Baghdad have wheelchairs (Tareq&Lafta, 2018).

In Tehran, Iran most hospitals were in a good condition regarding physical environment and access to public transportation. More than 80% of the hospitals were near bus

routes or subway stations. There was a hospital that had a separate entrance for the elderly patients. 50% of the hospitals had the necessary facilities for senior patients in all important areas of the hospital and 88% of the hospitals had a good lighting. In 100% of the hospitals, the doors to different sections and rooms were wide and there were elevators in almost all the floors. Eighty-five per cent of the hospitals had ramps for wheelchair users and railings for staircases (Ahmadi et al, 2015).

A study in Singapore revealed that rails could be installed, toilets are difficult to access, doors are heavy or too narrow, the floors wet, and some corridors are too narrow (Woo et al, 2013). In Taiwan, the hospital applies the common principles of universal design to its physical environment whenever practical, affordable and possible. The hospital facilitates transport to and within its facilities for all, including older persons. The facilities are equipped with good lighting, non-slip floor surfaces, stable furniture and clear walkways. The facilities, including waiting areas, are clean and comfortable throughout. There are hand railings on both sides of hallways (Chiou& Chen, 2009). Limited seats were reported in some clinics of Hong Kong PHC (Woo et al, 2013).

In this study dedicated disabled persons parking, accessible shower and eating outlet in building were observed in about half of hospitals but in none of primary health care. A study in Saudi Arabia revealed that PHCCs have limited parking opportunities, toilet in waiting areas and eating outlets (Alhamdan et al, 2015). In Iran none of the hospitals had special parking space for the elderly. In 92% of the hospitals, there was a toilet in all important areas, and 58% of the hospitals did not have toilet doors that open both ways. In more than a half of the studied hospitals, toilets lack an alarm, but they had grab rails (Ahmadi et al, 2015).

This study revealed that the letter sizes of signage were appropriate and staffs were easily identified in the majority of health facilities. Signage was non-glare, characters contrast with background, familiar picture and signs displayed at eye level were observed in about half of health facilities. A Saudi study revealed that the layout of most PHCCs and their signage were generally good, except for the lack of Braille signage. Staff were easily identified by name badges or name boards in all centers (Alhamdan et al, 2015). In Iran in most hospitals; the words and signage were not displayed in the local language, none of the hospitals had special parking space for the elderly (Ahmadi et al, 2015). In Dubai about 44.6% of physical environment properties of the PHCCs are matching the WHO recommendations (Farid et al, 2017).

In Taiwan simple and easily readable signage is posted throughout the hospital to facilitate orientation and personalize providers and services. Key health-care staff members are easily identifiable using name badges and name boards (Chiou& Chen, 2009). However, in Singapore service providers commented that signage may be inadequate for visually impaired or illiterate (Woo et al, 2013).

All health facilities measure blood pressure. However, obesity assessment, blood glucose and hemoglobin estimations as well as visual assessment were reported by about half of facilities. A Saudi study revealed a good coverage of basic health assessment (e.g. blood pressure, obesity, cholesterol) in PHCCs (Alhamdan et al, 2015). However a study in Tehran, Iran concluded that most hospitals were in a poor condition for special healthcare programs for the elderly (Ahmadi et al, 2015). In Singapore health services had inadequate seats in emergency department and insufficient waiting areas (Woo et al, 2013). An Iraqi study revealed that all PHCCs in Baghdad have the essential equipment and investigations (Tareq&Lafta, 2018)

A Taiwan hospital was found to have guidelines on assessment of patient's condition-related needs for disease management and rehabilitation, such as needs of asthma patients, diabetes patients, stroke patients, patients with heart failure, patients with chronic obstructive pulmonary disease, patients with coronary artery disease, patients undergoing arthroplasty, patients undergoing other surgeries or procedures, patients with terminal illness, etc. The assessment of a patient's needs is done at first contact with the hospital and is kept under review and adjusted as necessary according to changes in the patient's clinical condition or on request. The assessment is documented in the patients' record. Information from the referring physician or other relevant sources is available in the patient's record (Chiou and Chen, 2009).

The current study revealed that counseling about tobacco hazards, healthy eating, physical activity, sun exposure/avoidance, oral health care, injury/fall prevention and poly-pharmacy were reported by about 40% to 69% of health facilities. A Saudi study revealed that <50% of the PHCCs offered annual comprehensive screening for the common age-related conditions but there is no screening for cancer. Lifestyle counseling was available but without any standard protocol. Furthermore, the coverage of common vaccinations was poor (Alhamdan et al, 2015). A study in PHCC in Hong Kong revealed uncertainty whether dispensed medications are taken correctly, lack of awareness of feedback mechanisms; and older people are still sometimes not treated with respect (Woo et al, 2013). A Taiwan hospital was found have age- and gender-appropriate guidelines on assessment of patient's needs for health promotion and disease prevention, including lifestyles, nutritional status, psycho-social-economic status, fall prevention, etc. The hospital has guidelines on high-risk screening for the seniors. Use of medications is reviewed at admission and regularly at outpatient services (Chiou et al, 2009).

There is a need for improvement of health care infrastructure quality of services to be age-friendly at primary level and hospitals. The study findings will help policy makers to take immediate measures to establish age-friendly health services with wide range of interventions to promote and implement the concept of active ageing within the context of the new health insurance system to be implemented in Egypt.

There is a need for a nation-wide large scale study of the strengths and challenges of both the aging health needs and services to identify gaps in services, formulate policies needed to improve the health and well-being of older adults before implementing the new national health insurance system. Further qualitative research involving elderly, their companions and health care providers are needed

In conclusion both PHCCs and hospitals in Port Said are not appropriate for elderly and more than half of the criteria evaluated need to be developed further for the service to be age-friendly. The findings of this study provide up-to-date and relevant data for policy makers in Egypt.

**Study limitations:** This study included only one governorate and its results cannot be generalized at national level. Also the private clinics were not included. The opinions of elderly and their family care providers were not studied. Physical environment of inpatient departments of hospitals were not checked for age-friendliness. It is could be inappropriate to use the same tools for PHCCs and hospitals due to the lack of standardized tool for hospitals.

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