

# Quality of Non-Communicable Diseases Services Provided in family Health Centres and its Relation to Patients satisfaction in Alexandria

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## **Abstract**

**Background:** Non-communicable diseases (NCDs) mainly cardiovascular diseases (CVDs), cancer, chronic respiratory diseases (CRDs), and diabetes mellitus (DM) represent a leading threat to human health and development worldwide. satisfaction of patients holds great importance in primary health care (PHC) settings. However, there is a lack of sufficient consideration given to patient satisfaction. **Objective:** To assess the Quality of Non-Communicable Diseases Services Provided in family Health Centres and its Relation to Patients satisfaction in Alexandria. **Settings:** The study was carried out in sixteen family health centres affiliated to the Ministry of Health and Population (MOHP) in Alexandria. **Subjects:** A multistage systematic random sample was used to randomly select 25 patients from each of the previously mentioned settings, resulting in a total of 400 hypertensive and/ or diabetic patients. **Tools:** three tools were used. Tool one: "Patient semi structured interview schedule". Tool two: "The patient Satisfaction Questionnaire Short Form (PSQ-18)". Tool three: "Quality of non-communicable diseases services assessment tool " **Results:** The study showed that more than half (54%) of the patients expressed a moderate level of satisfaction with non-communicable diseases services. Furthermore, the overall mean quality performance of NCDs services was fair ( $74.52 \pm 2.45$ ). **Conclusion:** The findings of the present study revealed that all the studied family health centers had fair quality performance in the eight quality dimensions. The weakness was mostly observed in the areas of patient care and radiology services. Moreover, Quality of NCDs services was significantly related to patient satisfaction level. **Recommendations:** Strict adherence to the MOHP Accreditation Program Standards for PHC in providing NCDs services.

**Keywords:** Services quality, Non-communicable diseases, Family health center, Patient satisfaction.

## **Introduction**

Non-communicable diseases (NCDs) have grown to be a significant public health issue on a global scale. (Horton & Sargent, 2018). Their alternate name, "chronic illnesses,"(WHO, 2020). NCDs are today the leading global cause of disability and mortality. People of various ages and all classes are affected by this diverse set of diseases, which includes, among others, cardiovascular diseases, cancers, chronic

respiratory diseases, and diabetes (Gogna et al., 2022), (Branca et al., 2019).

According to the World Health Organization (WHO) 2021, these four diseases are the world's biggest killers, causing an estimated 41 million deaths each year, accounting for 71% of deaths worldwide (WHO, 2021).

Quality of care is a reality in the healthcare sector. It is now necessary for both the survival of the patient's finances and their health. One of the most cited principles of

health policy is quality of care, and policymakers at the national, European, and international levels place it high on their priority lists now (Haraldstad et al., 2019) (Luthra et al., 2021). The satisfaction of patients holds great importance in PHC settings. However, there is a lack of sufficient consideration given to patient satisfaction (Gashaye et al., 2019).

Community health nurses (CHNs) frequently attempt to offer remedies that address the illness's biological, physical, social, and environmental causes. Interventions are developed in partnership with the community through the development of programs and the promotion of policy changes, helping to address locally defined needs, take into consideration resources, and explore other relevant activities that may contribute to better health outcomes and patient satisfaction (WHO, 2017) (Cassiani & da Silva, 2019) (Lopes-Júnior, 2021).

### ***Aims of the Study***

This study aims to assess *the Quality of Non-Communicable Diseases Services Provided in family Health Centres and its Relation to Patients satisfaction in Alexandria.*

### ***Research questions***

- What is the quality of non-communicable diseases services provided at family health centres in Alexandria?
- What are the levels of client's satisfaction regarding non-communicable diseases services provided at family health centres in Alexandria?
- What is the relation between quality of non-communicable diseases services provided at family health centres & patient satisfaction in Alexandria?

### ***Materials and Method***

#### ***Materials***

**Design:** Descriptive correlational research design was used to conduct this study.

**Settings:** This study was conducted in sixteen family health centres affiliated to the

MOHP in Alexandria. Sidi Beshr Bahari family health center, Al Amrawi family health center, San Stefano family health center, Smouha family health center, El-Amood family health center, El kabary family health center, El-Hdara family Health center, Al Attarin family health center , Al-Amal family Health Center, El Hagari family health center, Amreya family health center, Al wadi family health center, Borg El-Arab family Health old center, Baheg family health center, Al Dakhilah family health center and Al Bahria family Health center.

**Subjects:** A multistage systematic random sample of 400 patients having one or more of the NCDs including hypertension and / or diabetes mellites who are attending any of the above-mentioned settings more than two times before the time of the participation of this study. Also, three health care personnel (physician, nurse, administrator) in the selected family health centers were included in this study giving a total number of 48 health care personnel. The sample size was calculated using power analysis (Epi-info7) program based on the following parameters: population size = 56600/ year, expected frequency =50%, acceptance error =5%, confidence coefficient =95%.

**Tools:** In order to collect the necessary data for the study three tools were used:

**Tool one: “Non-Communicable diseases Patients semi structured interview schedule”.** This tool was developed by the researcher, after reviewing recent literature to collect the necessary data from patients. **It included the following data:**

- Demographic characteristics of patients such as age, sex, marital status, place of residence...etc.
- Patient socioeconomic level, to identify the patients' socioeconomic level Fahmy and El-Sherbini Socio-Economic Scale 1983, which was updated by (Fahmy et al., 2015) was used. This scale includes questions as educational level, occupation, family income, family size,

crowding index. etc. The socio-economic level was estimated and scored as the following: ( $\geq 70\%$ ) high socioeconomic, (40 to  $< 70\%$ ) medium socioeconomic, ( $< 40\%$ ) low socioeconomic.

- **Tool two: The patient Satisfaction Questionnaire Short Form (PSQ-18)**

It is a brief self-reported patient satisfaction questionnaire, developed by Marshall G, Hays R in 1994, it was used after being adapted / translated into local Arabic language by the researcher to match the Egyptian culture. It was used to assess patient satisfaction with services provision. It is an 18-item scale with seven “specific” subscales.

(PSQ-18) is an 18-item scale with seven “specific” subscales divided as follow; general satisfaction subscale (2 items), technical quality subscale (4 items), Interpersonal manner subscale (2 items), Communication subscale (2 items), Financial aspect subscale (2 items), Time spent with doctor subscale (2 items) and Accessibility and convenience subscale (4 items).

It ranges from 18-90, whereas those having score, as follow: 18-42 (low satisfaction), 43 – 66 (moderate satisfaction), 67-90 (high satisfaction).

**Tool three: Quality of non-communicable diseases services assessment tool** (MOHP, 2015).

This tool was developed by the researcher based on the MOHP Accreditation Program Standards for PHC (2015) to assess quality of NCDs services in family health centers. During the formulation of these standards, the standard was divided into eight dimensions which are: Patient rights, Patient care, Safety, Support services, Management of information, Quality improvement program, family practice and management of the organization.

Eight dimensions were assessed using these assessment methods and techniques: (observation checklist, record review & interview with health care providers).

Responses were distributed as Fully met score (3), Acceptable partially met score (2) Unacceptable partially met score (1) and not met score (0). All scores were summed up and divided by the total items.

After assessment, the PHC score was used to determine the level of quality as: • Poor quality performance: This is the status when the Centre scores less than 50% of the total score. • Fair quality performance: This is granted when the Centre scores between 50 % and 79% of the total score. • Good quality performance: This is granted when the Centre scores from 80 % to 100% of the total score

***Method***

Approval from the Research Ethics Committee, Faculty of Nursing, Alexandria University was obtained. Official letter from the Faculty of Nursing, Alexandria University was directed to the Directorate of Health Affairs in Alexandria Governorate to inform them about the study objectives and to obtain their permission to conduct the study in the selected settings. approval letter was directed from the MOHP in Cairo to directors of the selected health zones and the selected family health centers' directors to facilitate conducting the study. Meetings were held with the directors of the selected family health centers to clarify the purpose of the study and to gain their cooperation during data collection. The content validity of the study tools was tested by exposing it to a group of juries composed of five experts in the field of community health nursing and nursing administration. Their opinions and suggestions were taken into consideration in making tools revision. The pilot study was applied to a sample of (40) patients from one health care center namely Smouha family health center that were excluded from the study sample to test the clarity and applicability of the research tools. Cronbach's Alpha Coefficient test was used

to ascertain the reliability of the tools. The reliability coefficient was 0.764 for tool two and 0.903 for tool three which is acceptable. Data was collected by the researchers during the period from August 2022 to January 2023.

**Ethical considerations:**

Written informed consent was obtained from the patients after explanation the aim of the study. Witness written informed consent was obtained from health care providers after explanation of the aim of the study. Confidentiality of data was maintained. The anonymity of the study subjects was ensured. The subjects' voluntary participation and their right to withdraw from the study were ascertained. Dealing with the study subjects was based on mutual respect with no discrimination between them.

**Statistical Analysis**

The collected data was coded and entered in a special format to be suitable for computer feeding. Following data entry, checking and verification processes were carried out to avoid any errors. Data were analyzed using the statistical package for social science SPSS (version 25). The level of significance selected for this study was  $P \leq 0.05$ . It was used as the cut off value for statistical significance.

**Results**

**Table 1** presents the distribution of the patients with non-communicable diseases according to their socio-demographic characteristics. The table shows that more than of half (58%) of patients aged from 50- <70 years with a mean of  $59.89 \pm 12.08$  years, slightly more than three-quarter (76.5%) of them were females, more than half (59.5%) of them were married. More than one-tenth (15%) of them were illiterate or read and write. On the other hand, about three-quarter (75.5%) of them completed their basic education, less than one-tenth

(7%) of them completed their secondary education. Only 2.5% of them obtained university education or higher. Regarding the working status, it was found that slightly more than half (56.5%) of patients were employed. *in addition*, most of them (93.8%) live in urban areas. Also, nearly three-quarters (73%) of them felt that their income was enough to meet their needs. On the other hand, slightly more than one-quarter (27%) of patients felt that their income was not enough. Concerning the socioeconomic level of patients, the majority (91%) of them had medium socioeconomic level and those who had low and high socioeconomic level represented only 4.5% for each category.

**Table 2** patient satisfaction with quality of NCDs services. The Mean total score of patient satisfaction was  $3.75 \pm 0.74$ . The mean satisfaction levels were higher in the dimensions of interpersonal manner ( $4.30 \pm 0.89$ ) and financial aspects of care ( $4.28 \pm 0.91$ ) compared to the mean satisfaction levels of technical quality ( $3.83 \pm 0.94$ ), accessibility and convenience ( $3.68 \pm 0.82$ ), doctor-patient communication ( $3.52 \pm 1.28$ ), general patients' satisfaction ( $3.46 \pm 1.03$ ), and time spent with the doctor ( $3.19 \pm 1.57$ ).

**Figure 1** shows overall patient satisfaction with NCDs services. The table indicates that more than half (54%) of the patients expressed a moderate level of satisfaction with non-communicable diseases services. Furthermore, 45.5% of them reported a high level of satisfaction, while only 0.5% of them expressed a low level of satisfaction.

**Table 3** shows Quality dimensions of all studied family health centers and overall quality. Among the studied healthcare centers, the overall mean quality performance of NCDs services was fair ( $74.52 \pm 2.45$ ). Among the eight dimensions of quality, the quality improvement program showed the

highest compliance ( $95.13 \pm 1.77$ ), while patient care showed the lowest compliance ( $46.42 \pm 0.97$ ). The management of information was rated at ( $90.47 \pm 0.00$ ), management of the organization at ( $89.06 \pm 0.69$ ), patient rights at ( $83.33 \pm 1.32$ ), safety at ( $79.09 \pm 0.31$ ), family practice at ( $73.33 \pm 0.00$ ), and support services at ( $71.72 \pm 7.68$ ).

**Table 4** shows the Relation between quality of NCDs and patients' level of satisfaction. The table indicates that there was a statistically significant relationship between the quality of NCDs services and patient satisfaction level ( $r = 0.113$ ,  $P = 0.024$ ).

### *Discussion*

Primary care is the central function of a health system; All patients can access it, and by offering initial contact, continuity, and integration of care, it can control early stages of NCDs (Varghese et al., 2019).

Evaluation of healthcare quality is an essential component of health system research. The findings of the current study can help the relevant authorities and practitioners create a plan to enhance the quality of NCDs and subsequently raise the rate at which such services are utilized to enhance health status, patient satisfaction and avoid further complications or health issues (Rezaei et al., 2018) (Alrasheedi et al., 2019).

**The main findings of the current study revealed that** Among the studied patients, most of NCDs patients attending primary health care centers were moderately satisfied with the provided services with total score mean ( $3.75 \pm 0.74$ ). Patient satisfaction varied in different dimensions. The higher level of satisfaction was in dimension of the interpersonal manner (The medical team's treatment of patients in a friendly manner) and the lowest level of satisfaction was in dimension of time spent with doctor (The

medical team sometimes performs care in a very hurry manner when they provide medical care). Mean satisfaction of financial aspects was ( $4.28 \pm 0.91$ ), technical quality was ( $3.83 \pm 0.94$ ), accessibility and convenience were ( $3.68 \pm 0.82$ ), communication was ( $3.52 \pm 1.28$ ), general patients' satisfaction was ( $3.46 \pm 1.03$ ).

A surprising finding emerged from the study, indicating that despite overall high-quality performance, patient care exhibited a lower level of compliance. This discrepancy can be attributed to several factors observed during the study, including inadequate implementation of complete physical and psychological assessments during each patient visit, insufficient provision of comprehensive health education, and time constraints impacting individual patient interactions.

The results of the present study supported a study conducted by yas A, in two urban primary health care centers in Iraq to measure patient satisfaction with two primary health care centers services. The mean degrees of satisfaction for both PHC centers were (53.9%). The highest degree of satisfaction was for The chairs are available in the waiting area and in sufficient quantity, Doctors treat them with good pictures and respect (Yas, 2020).

The current study's results were inconsistent with Alenazi A, Alhazmi T, Almatrafi A, Basheir M, Alshammari A, reported that overall score for patient satisfaction in 3 family health centers in Saudi Arabia was ( $4.08 \pm 0.43$ ). The higher level of satisfaction was in dimension of the financial aspects ( $4.57 \pm 0.74$ ) and the lowest level of satisfaction was in dimension of general satisfaction ( $3.49 \pm 0.72$ ) (Alenazi & Alhazmi, 2021).

The higher level of patient satisfaction in in the studied patients can be attributed to Egyptians 'friendly nature, openness to other cultures. In contrast, during data collection, it was observed that family health centers experience a high influx of patients ,resulting

in each physician having limited time, typically around 10 minutes, to spend with each patient. Consequently, the lower level of satisfaction may arise from instances where the medical team provides care in a rushed manner.

Among the studied healthcare centers, overall mean quality performance of NCDs services in primary health centers was fair ( $74.52 \pm 2.45$ ). Among the eight dimensions of quality, quality improvement program showed the highest compliance ( $95.13 \pm 1.77$ ) and patient care showed the lowest compliance ( $46.42 \pm 0.97$ ). management of information was ( $90.47 \pm 0.00$ ), management of the organization was ( $89.06 \pm 0.69$ ) patient rights was ( $83.33 \pm 1.32$ ), safety was ( $79.09 \pm 0.31$ ), family practice was ( $73.33 \pm 0.00$ ) and support services was ( $71.72 \pm 7.68$ )

The current study's results were consistent with another study conducted by LEWIS, T in eight primary health centers in Nepal. The study revealed that Quality scores were 75% or below in the four primary health care centers (Lewis, 2021).

In contrast to the current study's results, another study conducted by Farahata T, Alkota M, Khalila N, Foudab M in Monshaat Sultan Family Health Center in Menoufia used Egyptian PHC Accreditation Standards. The study revealed that the overall compliance of Monshaat Sultan FHC with current Egyptian PHC Accreditation Standards was 33.64%. Among the eight dimensions of quality, patient care showed the highest compliance (46.65%), and quality improvement program showed the lowest compliance (12.12%). Patient rights compliance was 13.73%, safety was 38.70%, support services was 43.89%, information management was 23.81%, family practice model was 24.07%, and organization management was 12.82% (Farahat et al., 2016).

The moderate healthcare quality in the studied centers can be attributed to several factors. Limited healthcare infrastructure creates differences in access to quality care.

A shortage of healthcare professionals relative to the population size, along with resource constraints and challenges in health information systems and data management, further impact the provision of high-quality care. Socioeconomic differences, public health challenges, and variations in governance and regulatory frameworks also contribute to healthcare quality. Therefore, Health care quality in developed countries is better than in developing countries (do Carmo Caccia-Bava et al., 2022). In addition, the accreditation of studied family health centers by the Ministry of Health and Population signifies compliance with national standards, assuring the quality of care provided. This recognition validates the implementation of best practices, including clinical protocols, infection control measures, and patient safety protocols. The accreditation process involves ongoing monitoring and evaluation, ensuring continuous improvement and accountability (Hussein et al., 2021).

### **Conclusion**

Based upon the findings of the current study, it could be concluded that most of patients attending primary health care centers were moderately satisfied with the provided services for NCDs.

Regarding quality, all the studied family health centers had fair quality performance in the eight quality dimensions. Moreover, Quality of NCDs services was significantly related to patient satisfaction level.

### **Recommendations**

*In line with the findings of the study, the following recommendations are suggested:*

- Allocate a specific clinic in the primary health care settings for NCDs education and examination.
- Improve workflow and decrease waiting time spent by patients in the center.
- Provide adequate number of health workers according to the load of work.
- Increase physical resources and strengthen radiology services.

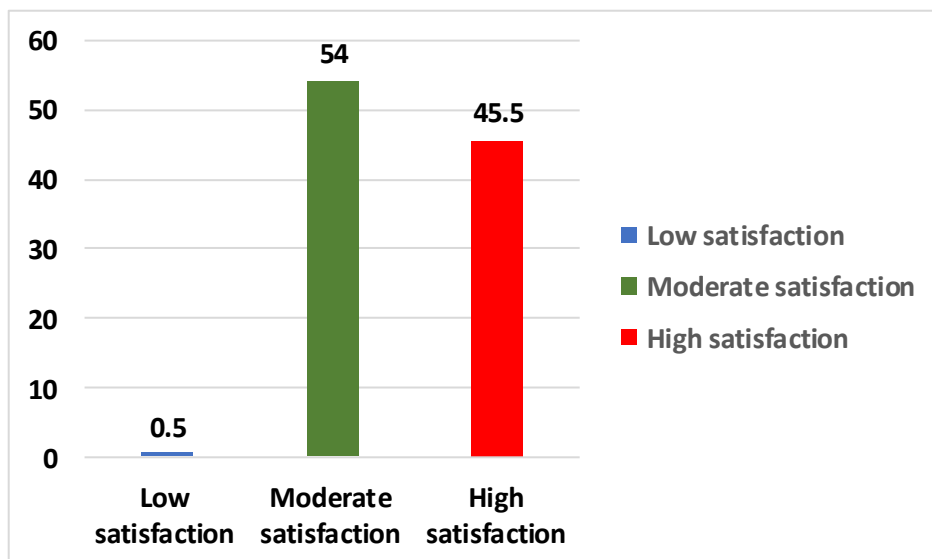
**Table (1): Distribution of the patients with non-communicable diseases according to their Socio-demographic characteristics**

Socio-demographic characteristics	Total (n=400)	
	No.	%
<b>Age (years)</b>		
• < 50	76	19
• 50-	116	29
• 60-	116	29
• ≥70	92	23
<b>Min. - Max.</b>	<b>22.00 - 82.00</b>	
<b>Mean ± SD.</b>	<b>59.89 ± 12.08</b>	
<b>Sex</b>		
• Male	94	23.5
• Female	306	76.5
<b>Marital status</b>		
• Single	58	14.5
• Married	238	59.5
• Divorced	38	9.5
• Widower	66	16.5
<b>education level of patient</b>		
• illiterate/read and write	60	15
• Basic education (Literate certificate / primary/preparatory)	302	75.5
• Secondary	28	7
• University/postgraduate	10	2.5
<b>Patient working condition</b>		
• No	226	56.5
• Yes	174	43.5
<b>Current place of residence</b>		
• Rural	25	6.3
• Urban	375	93.8
<b>The level of adequacy of the monthly income of the family</b>		
• Not enough	108	27
• Enough only	292	73
<b>Socioeconomic level *</b>		
• Low	18	4.5
• Medium	364	91
• High	18	4.5

\* Based on modified Fahmy and El-Sherbibi Scale

**Table (2): patient satisfaction with quality of NCDs services**

Patient satisfaction domains	Mean ± SD.	Min. - Max.
General satisfaction	3.46 ± 1.03	1.00 - 5.00
Technical quality	3.83 ± 0.94	1.25 - 5.00
Interpersonal manner	4.30 ± 0.89	1.00 - 5.00
Communication	3.52 ± 1.28	1.00 - 5.00
Financial aspects	4.28 ± 0.91	2.00 - 5.00
Time spent with doctor	3.19 ± 1.57	1.00 - 5.00
Accessibility and convenience	3.68 ± 0.82	1.00 - 5.00
<b>Mean total score ± SD</b>	<b>3.75 ± 0.74</b>	



**Figure (1): Overall patient satisfaction with non-communicable diseases services**

**Table (3): Quality dimensions of all studied family health centers and overall quality**

Quality Dimensions	Min. - Max.	Mean ± SD.
Quality improvement program	92.59 - 96.30	95.13 ± 1.77
Management of information	90.48 - 90.48	90.47 ± 0.00
Management of the organization	88.89 - 91.67	89.06 ± 0.69
Patients' rights	82.05 - 84.62	83.33 ± 1.32
Safety	78.79 - 79.39	79.09 ± 0.31
Family practice	73.33 - 73.33	73.33 ± 0.00
Support services	64.29 - 79.17	71.72 ± 7.68
Patients care	45.24 - 47.62	46.42 ± 0.97
<b>Total quality dimensions</b>	<b>71.88 - 77.26</b>	<b>74.52 ± 2.45</b>



**Table (4) Relation between quality of non-communicable diseases services and patients’ level of satisfaction**

Variables	Mean percent score	Test of significance
Quality of non-communicable diseases services	2.30	<b>r =0.113</b> <b>*P= 0.024</b>
Patients’ level of satisfaction	2.23	

**R: Pearson correlation coefficient**

**\* Significant at P ≤ 0.05**

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