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Readiness of Primary Health Care Centers for Implementation of Universal Health Insurance System as Perceived by Nursing Staff

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Abstract
Background: The universal health insurance system **(UHIS)** in Egypt represents a significant shift in the country's approach to healthcare. **Aim:** to assess the primary health care (PHC) centers readiness for implementation of **UHIS. Study design:** A descriptive research design was used. **Setting:** The study was carried out at PHC centers in the El-Badari health district. **Subjects**: Consist of (40) nursing staff. **Tools:** The data collected through a self-administered questionnaire including, **Part (1):** Personal data sheet and **Part (2):** Service Availability and Readiness Assessment Questionnaire. **Results:** The highest means score of service availability and readiness in favor of service specific readiness and the lowest mean score in favor of service availability**.** The lowest mean score of general service readiness is in favor of laboratory capacity and essential medicine. At the PHC center level, The highest readiness was observed in Al-Badary (90.0%) while the lowest readiness was observed in Al-Etmaneya (51.0%). **Conclusions:** More than half of PHC centers are ready for implementation of a universal health insurance system**. Recommendations:** Policymakers should create strategies to close existing system gaps for successful and sustainable implementation of the universal health insurance system.

Keywords: Primary health care, Readiness & Universal Health insurance.

Introduction
The goal of any healthcare system in the world is to maintain and improve population health. Universal health coverage (UHC) is a new strategy for achieving the objectives of a healthcare system. The World Health Organization highlighted three aspects of UHC: financial protection, health service coverage, and maximum population coverage **(Derakhshani et al., 2021).** According to **WHO, (2025)** UHC is defined as everyone having access to the entire spectrum of high-quality health services they require, when and where they need them, without financial suffering. UHC provides the entire spectrum of vital health services, from health promotion to prevention, treatment, rehabilitation, and palliative care throughout the life course.

Egypt has determined that the best method to attain UHC is through universal health insurance system. Egypt is moving closer to achieving universal health care with the new universal health insurance law. It means ensuring that everyone in Egypt has access to the health care they require without experiencing financial hardship **(Mathaue et al., 2019)**. A reform act that established a nationwide health insurance program was approved in Egypt in 2018. A significant change in the referral process is implied by the new UHIS. According to the law, UHIS controls the kind of healthcare providers that would offer the insured person's healthcare service package. It establishes healthcare levels and entry points **(Farrag et al., 2021**).

In July 2019, the new UHIS went into operation in Port-Said, a minor governorate in Egypt, as a pilot to that will be expanded in five stages. The infrastructure, financial arrangements, and new health insurance laws have been created to ensure effective and successful implementation of the system. **(Hopayian & Soliman, 2019)**. Since a large portion of the global population still lacks access to basic healthcare facilities, universal health coverage depends on a robust primary healthcare system. To achieve this, primary healthcare must be at the community and household levels **(Sacks et al., 2020)**. PHC is a basic healthcare approach that meets individuals' needs throughout health promotion, the prevention of diseases, treatment, rehabilitation, and end-of-life care. PHC centers frequently serve as the first contact point for people and deliver care to a considerable segment of the population and are crucial in ensuring patient safety **(Ayyad et al., 2024)**. Strengthening the PHC system through the provision of sufficient funding, highly qualified and motivated human resources, effective administration and leadership, sufficient supplies and equipment, necessary medications, and consistent political support **(Osoro, et al., 2020).**

One of the health system's primary responsibilities is to guarantee access to high-quality health care

services. Affordability, which relates to the client's capacity to pay for the services, and availability, which describes the facilities' actual location or reach, are two of the components that make up service access. Service readiness is a need for service quality; health care institutions must be able to provide the services they offer. This capability includes the availability of skilled personnel, policies, and clinical procedures. Infrastructure, equipment, medications, and laboratory tests **(WHO, 2015)**.

Significance of the study

Egypt has made a political commitment to advancing social justice in healthcare and achieving UHC. Additionally, one of the most significant pillars of Egypt's Sustainable Development Strategy Vision 2030 is the UHIS. To attain complete coverage of the entire population, the new health insurance law will need to develop the PHC centers, which will be dispersed throughout the nation **(Anwar, 2018)**.

Multiple studies that examined service availability and readiness in PHC centers were also published in professional articles and international journals. **Choi, (2020)** "examined the availability, readiness, and utilization of services in Mali," and **Sabit et al. (2016)** conducted a study along similar lines, "examining the readiness of primary hospitals and health centers for the implementation of proposed health insurance schemes in Southwest Ethiopia." No research has been done in Egypt to measure PHC facilities' readiness for the implementation of UHIS. Therefore, the researcher was motivated to carry out this study to determine to what extent PHC centers are equipped for UHIS. The study explores infrastructure, workforce capacity, basic equipment, standard precautions, and laboratory tests. The results will give the researchers insights into the gaps and challenges in achieving an effective and successful universal health insurance system.

Aim of the study

The study aimed to assess the primary health care centers readiness for implementation of a universal health insurance system from the perspective of nursing staff.

Specific objectives:

- Assess service availability in PHC centers.
- Assess general service readiness in PHC centers.
- Assess service-specific readiness in PHC centers.
- Assess PHC centers readiness for implementation of UHIS.
- Compare PHC centers regarding service availability and readiness dimensions.

Research questions:

Q1: Are PHC centers fulfill the criteria of service availability?

Q2: Are PHC centers fulfill the criteria of general service readiness?

Q3: Are PHC centers fulfill the criteria of service specific readsiness?

Q4: Are PHC centers ready for implementation of UHIS?

Q5: Compare between PHC centers levels of service availability and readiness dimensions

Q6: Which dimension is the best indicator for services availability and readiness at PHC centers?

Subject & Method:

Technical design:

It involves the research design, setting, subjects, and tools of data collection.

Research design:

Descriptive research design was used in the present study.

Setting of the study:

The study was carried out in ten PHC centers affiliated with the Ministry of Health and Population at El-Badari Health District in Assiut Governorate.

Study subjects:

A convenient sample of total number of nursing staff (n=40) was selected from (10) PHC centers (4 per center), including nurse managers, head nurses, nurses responsible for service quality and nurses responsible for training. These categories were chosen for their relevance to the successful implementation of the UHIS.

Tool of the study:

Self-administered questionnaire sheet, which consists of two parts**: Part (1):** A personal data sheet that gathered data about age, gender, educational qualification, marital status, and years of experience. **Part (2):** Service Availability and Readiness Assessment Questionnaire (SARA), which was developed by the World Health Organization **(WHO, 2015**) and modified by the researchers based on the current literature to measure service availability and readiness from the perspective of nurses in PHC centers. It consisted of 3 categories distributed as follows: 1) **service availability,** which consists of two dimensions: availability of health professionals and service utilization. **2) General service readiness,** which consists of six dimensions: basic amenities, basic equipment, standard precautions for infection prevention, laboratory capacity, supervision, and essential medicine. **3) Service-specific readiness,** which consists of 4 dimensions: **1)** Family planning services. **2)** Ante natal care services. **3)** Childhood vaccination services. **4)** Child health services.

Scoring system:

Items of each dimension were scored; each item was scored on 3 points. Likert scale ranging from (2) for

met, (1) for partially met, and (0) for not met. PHC facilities are ready to implement the UHIS if they receive 75% or more and PHC centers are not ready to implement the UHIS if they receive less than 75%.

Administrative design

An official letter from the Dean of Nursing Faculty at Assiut University was sent to the Undersecretary of the Ministry of Health in Assiut, the head of the EL-Badari health district, and the managers of PHC facilities. The goal of the letter was to ask for approval and assistance to gather the data required for the current study.

Ethical considerations

The research proposal was approved by the Ethical Committee at the Nursing Faculty, Assiut University, under code (1120230583). Informed consent was obtained in accordance with standard ethical guidelines for clinical research. Each nurse was informed about the significance of the study, and verbal consent was then obtained from each participant after they were assured of confidentiality and anonymity, that all data collected would be used exclusively for research, and that they had the right to refuse participation or to withdraw from the study at any time without explanation.

Operational design:

Preparatory phase: It includes reviewing the available literature regarding the study topics, and the Arabic translation of the study tool was done. This stage took about (6) months from the beginning of February to the end of August 2023.

Tool validity

To ensure precise understanding of the study tool, face validity was carried out. through a jury that had five expert opinions. Three professors and two assistant professors from the Nursing Administration and Community Health Nursing departments of Faculty of Nursing, Assiut University.

Pilot study

The pilot study was carried out on a group of 10% of the study subjects. It is used to evaluate the data researchers gathering tool for feasibility, clarity, and practicability. It was applied to (4) nurses chosen randomly from different PHC centers to ensure accessibility and to identify any problems that may occur during the collection of data.

Reliability

The Cronbach's Alpha Coefficient test was used to analyze the data from the pilot study for each item of the service availability and readiness assessment scale, $\alpha = 0.92$. Nurses who participated in the pilot trial were excepted from the total study sample to maintain data integrity.

Field work

The researchers distributed a questionnaire form to nurses in January 2024 to begin the actual data-gathering process after making sure the study instruments were clear and easy to grasp. After explaining the study's purpose to each participant separately, the researcher asked for their involvement. The study tool was given to the participants to complete through a self-administered questionnaire following the taking of informed consent to participate in the study. The study tool took about 15 to 20 minutes to complete. Data collection lasted for 2 months (from January to February 2024).

Statistical design:

SPSS version 22 (Statistical Package for Social Science) was used for data entry and analysis. Frequency, percentage, mean, and standard deviation were used to present the data. When $P < 0.05$, the P-value is considered statistically significant.

Results:

Table (1): Distribution of Nursing Staff Personal Data at PHC Centers (no. = 40)

Personal data	No. (40)	%
Age: (years)		
≤ 35	19	47.5%
> 35	21	**52.5%**
Mean ± SD (Range)	**38.53 ± 8.51 (26.0-55.0)**	
Occupation:		
Nurse manager	10	25.0%
Head nurse	10	25.0%
Staff nurse	20	**50.0%**
Sex:		
Female	40	**100.0%**
Male	0	**0.0%**
Marital status:		
Married	40	**100.0%**
Un married	0	**0.0%**
Qualifications:		
Bachelor degree	15	37.5%
Diploma degree	25	**62.5%**
Years of experience:		
≤ 20	21	**52.5%**
> 20	19	47.5%
Mean ± SD (Range)	**18.10 ± 9.80 (4.0-35.0)**	

PHC =primary health care, SD = Standard deviation.

Table (2): Mean scores of Service Availability as Perceived by Nursing Staff in Primary Health Care Centers (n= 40)

Dimensions	Mean ± SD
Service availability	
Staffing	1.79 ± 0.11
Service utilization	0.66 ± 0.13

SD = Standard deviation.

Table (3): Mean scores of General Service readiness as Perceived by Nursing Staff in Primary Health Care Centers (n= 40)

Dimensions	Mean ± SD
General service readiness	
Basic amenities	1.21 ± 0.19
Basic equipment	1.55 ± 0.42
Standard precautions for infection prevention	1.41 ± 0.31
laboratory capacity	0.98 ± 0.27
Supervision	1.50 ± 0.44
Essential medicine	1.05 ± 0.42

SD = Standard deviation.

Table (4): Mean scores of Service specific readiness as Perceived by Nursing Staff in Primary Health Care Centers (n= 40).

Dimensions	Mean ± SD
Service specific readiness	
Family planning service	1.64 ± 0.24
Antenatal care services	1.29 ± 0.40
Childhood vaccination services	1.87 ± 0.15
Child health services	1.40 ± 0.34

SD = Standard deviation.

Table (5): Mean scores of Service Availability and Readiness Dimensions as Perceived by Nursing Staff in Primary Health Care Centers (n= 40).

Dimensions	Mean ± SD
Service availability	1.22 ± 0.09
General service readiness	1.28 ± 0.28
Service specific readiness	1.55 ± 0.25
Total service availability and readiness score	1.35 ± 0.24

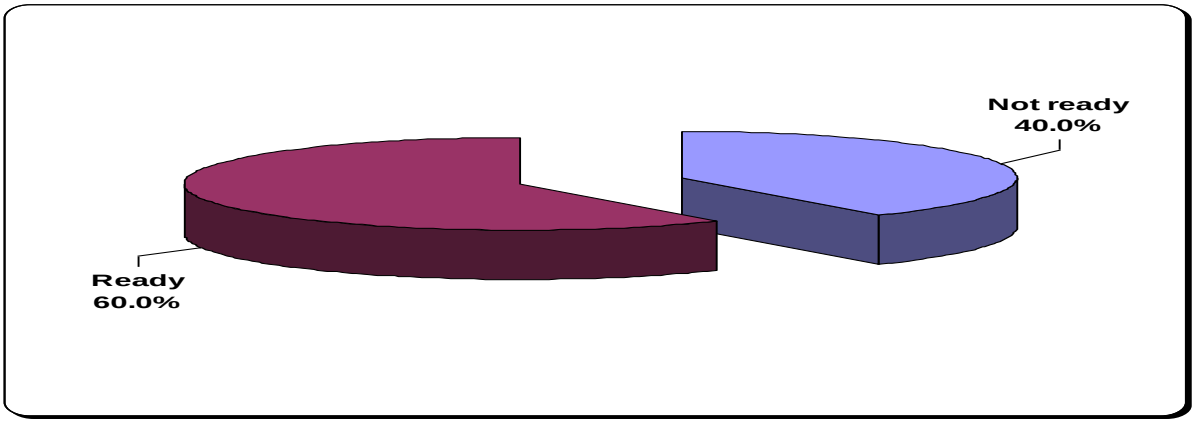

Figure (1): Distribution of Service availability and readiness of primary health care centers regarding Implementation of Universal Health Insurance System (no. = 40)

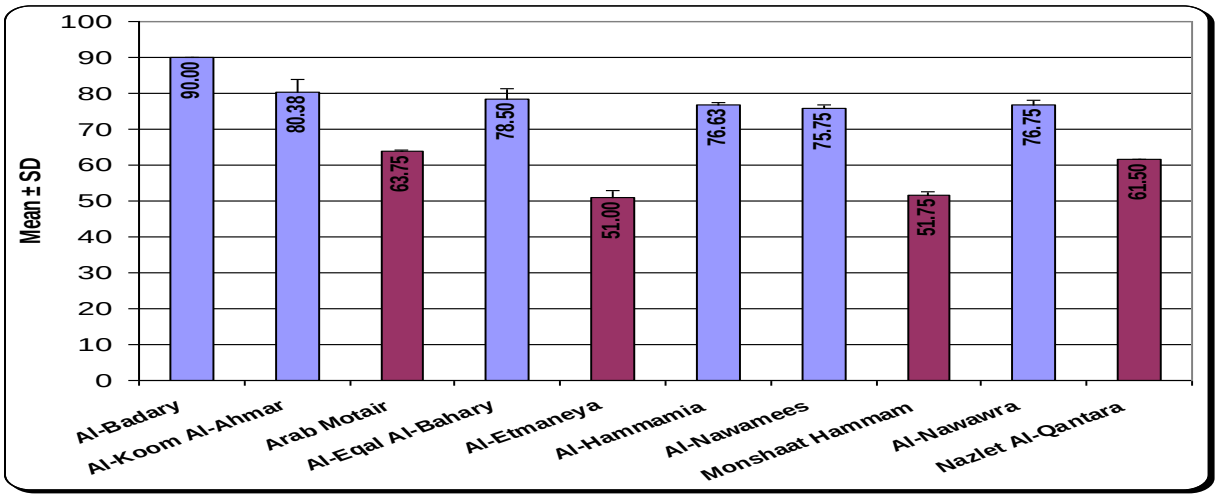

Figure (2): Comparison between primary health care centers levels of Service Availability and Readiness regarding Implementation of Universal Health Insurance System (no. = 40)

Table (1): Shows that all the study subjects are female, married, two third of them having diploma degree, and half of them are staff nurses **(100.0%, 100.0%, 62.5%, 50.0%)** respectively. Also, the table indicated that slightly above half of them (**52.5%**) aged more than 35 years and their years of experience equal or less than 20 years. Their mean age was (38.53) years old.

Table (2): Shows that the highest means score of service availability dimensions in favor of staffing **(1.79±0.11**). In contrast, the lowest mean score of service availability in favor of service utilization **(0.66 ± 0.13**).

Table (3): Shows that the highest means score of general service readiness dimensions in favor of basic equipment **(1.21 ± 0.19)** and the lowest mean score in favor of laboratory capacity, essential medicine, and basic amenities **(0.98 ± 0.27, 1.05 ± 0.42, 1.21 ± 0.19)** respectively.

Table (4): Shows that the highest means score of service specific readiness in favor of childhood vaccination and family planning service (**1.87±0.15 & 1.64±0.24)** respectively. In addition, the lowest mean

score in favor antenatal care and child health services **(1.29±0.40 & 1.40 ± 0.34)** respectively.

Table (5): Illustrated that the highest means score of service availability and readiness dimensions as perceived by nurses in PHC centers in favor of service specific readiness **(1.55±0.25). Also**, the lowest mean score in favor of service availability**. (1.22 ± 0.09)**.

Figure (1): Reveals that more than half **(60.0%)** of PHC centers are ready for implementation of universal health insurance system due to fulfilled ≥75% of criteria of service availability and readiness. Also, more than one third **(40.0%)** of PHC are not ready for implementation of universal health insurance system due to fulfilled <75% of criteria of service availability and readiness.

Figure (2): Reveals that the highest level of readiness regarding the implementation of universal health insurance system in favor of Al-Badary, Al-Koom Al-Ahmar, Al-Eqal Al-Bahary primary health centers **(90.00%, 80.38%, 78.50%**) respectively. And the lowest level of readiness in favors of **Monshaat Hammam & Al-Etmaneya** primary health centers **(51.75% &51.00%)** respectively.

Discussion

To accomplish UHC and SDGs by 2030, it is essential to provide quality healthcare services through efficient primary healthcare systems. This requires strong infrastructure, well-trained health professionals, and access to essential medicines and supplies **(Sampson et al., 2024).** PHC should be equally accessible to all members of society since they are the foundation of the health system and an important factor in the social and economic development of each country **(Ahmed et al., 2018)**.

The study found that all participants were female, reflecting the traditionally feminine nature of nursing in Egyptian culture. Over half were above 35 years old, with a mean age of 38.53 years, and their years of experience were equal to or less than 20 years, likely due to the lower transfer rates from PHC centers compared to hospitals. Additionally, most participants held diploma degrees, as diploma nurses are more commonly employed in PHC settings, while bachelor's degree nurses tend to work in hospitals, with some recently placed in PHC centers to improve quality of care.

This result is supported by **Ayyad et al. (2024**), who found that most of the participants were married women with a mean age of 38 years, an average of 15 years of experience in their current position, and more than half of them holding a diploma degree. In addition, more than one-third of them had a bachelor's degree. Primary and comprehensive centers provided the nurses for recruitment. Also, this result disagrees with **Tung et al. (2016),** who detected that most of the participants in the study were young (aged 35 or below), baccalaureate prepared and employed in a clinical setting.

The results of the current study showed that staffing had the highest mean score for service availability dimensions. This might be explained by participants perceiving an adequate number of staff members, except for general practitioners and specialists, which resulted in fewer patients visiting PHC facilities. This finding is in line with **Alzaied & Alshammari (2016),** who assess PHC services from the perspective of the patient and note that a lack of physicians in primary care facilities prevents patients from selecting primary care as their first choice.

Additionally, the results of this study showed that service utilization had the lowest mean score for service availability. This might be attributed to an inadequate number of physicians, lack of awareness, increased service costs, and lack of trust in the system, which lead to underutilization of services, especially maternal and child health services. This outcome is consistent with **Shehata et al. (2017),** which indicated that people go to primary health care facilities to get immunization. They continue to have little trust in public sector physicians. Customers are not well-informed about the importance of preventive healthcare, and if they do seek medical care, they favor low-cost private pharmacies and polyclinics. They believe that these two categories of providers are truthful and offer the best cost.

Furthermore, these results concurred with **Singh et al. (2020**), who found a direct correlation between the consumption of maternal and child health services at primary healthcare facilities and their cost. While lower or subsidized costs promote access and use of services, higher costs, particularly out-of-pocket expenses, are a major obstacle to service utilization. Moreover, this conclusion contrasted with **Ragab et al. (2019)**, who found that over half of the women in the study were aware of and satisfied with the health services offered at PHC centers, such as antenatal care and child follow-up.

The current study's findings revealed that laboratory capacity, necessary medications, and basic amenities have the lowest mean scores of general service readiness. This could be explained by a lack of funding, which causes the underutilization of services and delays the implementation of high-quality services. This finding is consistent with **Hussein (2023),** who clarifies that the primary obstacles that PHC center directors face are mostly financial barriers, which lead to a delay in the hiring of qualified staff and obtaining equipment necessary to comply with accreditation requirements.

The present study findings clarified that the highest mean score of service specific readiness in favor of childhood vaccination and family planning services this might be due to women's perceptions of the value of childhood vaccination and family planning services for both them and their children. This result is in contrast with **Shehata et al. (2023)** who conduct "assessment of the quality of PHC services in El-Behira governorate's and found that PHC centers had the highest mean score for service provision, particularly for childcare and maternity care".

Additionally, the result of this study declares that the highest means score of service availability and readiness dimensions in favor of service specific readiness. This might be due PHC centers fulfilled the criteria of service specific readiness especially childhood vaccination, the presence of staff trained in child immunization and availability of all equipment needed as, refrigerator, cold box, and temperature monitoring device. This finding inconsistent with **Ekenna, et al (2020)** who illustrated that that vaccines were only available in half of the facilities, PHC centers without working refrigerators only get their vaccines on immunization days, and most PHC centers do not keep vaccines stocked to meet the strict cold-chain requirement.

The current study's findings showed that service availability had the lowest mean score across readiness and service availability dimensions. This might be due to lack of diagnostics capacity, essential medicines and basic amenities which lead to underutilization of service especially maternal and child health services. This result aligns with the findings of **Thapa et al. (2023**), who evaluated the readiness of health facilities to offer antenatal care and found that basic equipment, diagnostics test, and medications were not readily available.

The findings of the current study demonstrated that over 50% of PHC facilities are ready to implement a national health insurance program. This result is inconsistent with a study by **Oladimeji et al. (2017),** which found that most respondents said their hospital was not prepared to implement the national health insurance program because of a lack of human resources and inadequate infrastructure to support its full implementation. Furthermore, this finding is inconsistent with a study by **Sabit et al. (2016),** who emphasized that public health facilities were not prepared to implement the recently planned health insurance.

Furthermore, the current study's findings indicated that the highest level of readiness regarding the implementation of UHIS in favor of Al-Badary health centers, Al-Koom Al-Ahmar, Al-Eqal Al-Bahary primary health center and the lowest level of readiness in favors **of Monshaat Hammam & Al-Etmaneya.** This might be due to ready centers taken actual steps to obtain provisional accreditation which is the first step towards preparing the facility for GAHAR's (The General Authority for Healthcare Accreditation and Regulation) Egyptian Accreditation Program as path for universal health insurance system. This finding was supported by **Ghareeb, Said, & El Zoghbi, (2018)** who noted that hospitals which pursuing accreditation showed higher quality standards compliance rate compared to those hospitals that were not.

Conclusion:

Based on the finding of the present study, it was concluded that:

The study revealed that more than half of primary health care centers are ready for the implementation of UHIS. PHC centers have all staff except specialist medical doctor" with low availability of generalist medical doctors. PHC centers ready to provide specific services as childhood vaccination and family planning service but not ready to provide antenatal care and child health services. PHC centers did not fulfill the criteria of general service as laboratory capacity, essential medicine and basic amenities.

Recommendations:

In the light of the findings obtained from the present study, the following was recommended:

For directors of PHC centers

- Create strategies to close existing system gaps for successful and sustainable implementation of the universal health insurance system.
- Strengthen public awareness of primary care benefits through continuous health education.
- Ensure availability of all services, physicians, equipment and supplies needed for successful implementation of UHIS.

For nurse managers

- Implement ongoing training to improve staff knowledge and adherence to UHIS requirements and encourage keeping up to date with current best practices.

For nursing faculty

- Integrate universal health coverage and nurses' roles in its implementation into curricula to better prepare graduates.

For further research

- Evaluate UHIS's effect on clinical outcomes, healthcare costs, and patient satisfaction.
- Design periodic educational training programs for nurse's managers, head nurses and staff nurses to improve their knowledge and performance regarding prerequisites of UHIS.

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