

Quality of Antenatal Care Services among Pregnant Women at Mansoura Governmental Hospitals

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Abstract

Quality of antenatal care is one of the four pillars of safe motherhood initiative (SMI), along with clean delivery, essential obstetric care, and family planning. **This study aimed to** evaluate the quality of antenatal care services among pregnant women at Mansoura governmental hospitals. **Design:** A cross-sectional descriptive design was utilized. This study was carried out in Antenatal Clinics at Mansoura University Hospital, Mansoura Old General Hospital, and Mansoura New General Hospital, Mansoura City, Dakahlia Governorate, Egypt, started from the beginning of June 2019 to the end of January 2020. **Subjects:** consisted of 384 pregnant women who were attending antenatal clinics at the previously mentioned hospitals selected by systematic random sampling technique (1, 4, 7, 10.....etc.) till the total sample size was obtained. **Tools:** two tools were used for data collection. The first was observational checklist for the quality of antenatal care; the second was structured interview schedule to assess socio-demographic data and woman satisfaction regarding antenatal care services. **Results:** Mansoura University Hospital achieved a good score of quality structure domain compared to moderate score in Mansoura New-General and Mansoura Old General Hospitals, also Mansoura University Hospital achieved a higher score regarding nursing practice. Furthermore, more than two-thirds of pregnant women at all studied hospitals strongly agreed with antenatal care services received. **Conclusion:** This study concluded that the quality of antenatal care services at Mansoura University Hospital was high compared to other studied hospitals. **Recommendations:** An adequate staff should be available to avoid long waiting times in Mansoura University Hospital. While, adequate waiting area is needed for hospitals affiliated to ministry of health and population.

Keywords: Quality, Antenatal care, Satisfaction.

1. Introduction:

Pregnancy and childbirth are safe and healthy experiences however, complications related to pregnancy and childbirth are too many (**Symonds & Arulkumaran, 2020**). Although pregnancy is a normal physiological process, it is associated with certain risks or complications that may account for nearly 75% of all maternal deaths including postpartum bleeding, postpartum infection, pregnancy-induced hypertension (PIH), complications from delivery and unsafe abortion. The remainders are caused by infections such as malaria or related to chronic conditions as cardiac diseases or diabetes (**WHO, 2019**).

World Health Organization (WHO, 2019) reported that, every day approximately 810 women died in 2017, about 295 000 every year during pregnancy and childbirth. The majority of these deaths (94%) occurred in low resource settings, and most could have been prevented by quality health care services (**Park, 2015; Sharma, Leslie, Kundu, & Kruk, 2017**). The maternal health outcomes will improve and the maternal mortality rate (MMR) will decrease if the pregnant women use the free maternal services and the quality of these services improved and maintained by a motivated and competent workforce (**Koroma et al., 2017**).

Between 2000 and 2017 the MMR dropped by about 38% worldwide (**Olonade, Olawande, Alabi, & Imhonopi, 2019; United Nations, 2019**). Egypt's MMR between 1998 and 2017, reduced from 70 deaths per 100,000 live births in 1998 to 37 deaths per 100,000 live births in 2017 (**UNICEF, 2019**).

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It has made a significant progress in improving maternal and neonatal health and it was on the fast track to achieving its Millennium Development Goals (MDG 5a to reduce maternal mortality). One of the corner stone's for achievement of these goals is the provision of quality antenatal care **(WHO, 2019)**.

Antenatal care (ANC) can be defined as “care before birth” a pregnant woman receives through a series of consultations with trained health care professionals to promote the wellbeing of the mother and her fetus **(Shukure & Simegnew, 2018; Fseha, 2019)**. It is a broad term used to describe the medical care and procedures that are carried out for pregnant women to detect the existing problems or the problems that can be developed during pregnancy, affecting the pregnant woman and her fetus **(Cumber, Diale, Stanly, & Monju, 2016; Ngxongo, 2018; Lowdermilk et al., 2020)**.

The Egyptian Ministry of Health and Population (MOHP), 2015 reported that, the antenatal follow-up visits have become more prevalent in Egypt than ever before. In 2014, around 90% of women underwent ANC checks during pregnancy, 83 % of them having had a regular visit of ANC. Among all births, 92% were attended by a skilled birth attendant and 87 % took place in a health facility. Only 14 % receive ANC from a public-sector facility.

The quality of care depends on the physical infrastructure, human resources, knowledge, skills, and capacity to deal with both normal pregnancies and complications that require prompt, life-saving interventions. Standards of care are required to measure inputs, the process of care or service provision, and the outcome of care **(Panneerselvam, 2017)**. The standard in nursing defines the outcomes, activities, and structural resources needed for better quality care **(Alexander, Gorski, Vizcarra, Perucca, & Czaplewski, 2018)**. Standards are the criteria by which the levels of excellence are established and are the basis for quality assessment, evaluation, and improvement. Furthermore, it is known as the integration of technical features, behavioral aspects, and the desired outcomes of health care **(Singh et al., 2018)**.

Satisfaction is the degree to which goals, needs, preferences, and expectations are met. Which in turn causes a pleasant feeling and promotes the woman's mental health and creates a feeling of calmness and security **(Dhahi, 2015; Asefa, Fikadu, & Taye, 2020)**. Women's satisfaction can be defined as women's judgment on the quality and goodness of care. And an integral part of the quality of care received. So that, every pregnant woman should feel welcome and respect at ANC clinics, and obtain services from skilled health care providers **(Lakew, Ankala, & Jemal, 2018; Odetola & Fakorede, 2018)**. Women's satisfaction can be achieved through good quality of ANC **(Kanwal, Hameed, & Riaz, 2017)**.

2. Significance of the study:

High quality ANC is a fundamental right for women to safeguard their health, help women maintain normal pregnancies and reduce the rate of maternal morbidity and mortality **(Catalano, 2020)**. Regarding Dakahlia Governorate, (93.1%) receiving regular ANC, (98.9%) were delivered by a skilled provider, (65.5%) were delivered by CS, and (64.1%) women using contraceptive **(MOHP, 2015)**.

Few studies in Mansoura City have focused on the quality of ANC services and women's satisfaction **(Abdo & ElGammal., 2014; Soliman, 2015; Ismail & Essa., 2017)**. There is only one previous study was conducted at antenatal clinic at the obstetrics and Gynecology center of Mansoura University Hospital in Mansoura city to evaluate the effect of utilizing modified standard of ANC on quality of nursing practices and women's satisfaction and this study concluded that utilizing a modified ANC standard was effective to improve the quality of nurses practices and increase the women's satisfaction regarding ANC services **(Sabry & Khedr., 2017)**. So, this research was conducted in another health sectors as Mansoura Old General Hospital and Mansoura New General Hospital which affiliated to ministry of health and population to evaluate quality of ANC services among pregnant women and compare it with quality of ANC in obstetrics and Gynecology center, Mansoura University Hospital which affiliated to Ministry of Higher Education.

3. Aim of the study:

This study aimed to evaluate quality of antenatal care services among pregnant women at Mansoura Governmental Hospitals.

4. Research question:

Do pregnant women receive quality antenatal care services in Mansoura Governmental Hospitals?

5. Subjects & method:

Study design:

A descriptive cross-sectional design was used.

Study setting: This study was conducted at Antenatal Clinics of three governmental hospitals in Mansoura City, Dakahlia governorate. Obstetrics and Gynecology Center of Mansoura University Hospital affiliated to the Ministry of Higher Education, Mansoura Old General Hospital, and Mansoura New General Hospital affiliated to the Ministry of Health and Population.

Sampling: The sample of pregnant women was calculated according to the following equation $N = \frac{Z^2 * (P) * (1-P)}{e^2}$. For this study, a sample size was 384 pregnant women who were attending to antenatal clinics at the previously mentioned hospitals. They were selected by a systematic random sampling technique (1, 4, 7, 10.....etc.) till the total sample size was obtained. The sample was divided as follows: 128 pregnant women were selected randomly from each hospital.

Tools: To achieve the study aim the following two tools were used

Tool I: Observational checklist for the quality of antenatal care

It was adopted from (Sabry et al., 2017) and used to evaluate the quality of ANC. It was consisted of two parts including 63 items which represented the two domains of quality (structure and process).

Part 1:

The first part regarding the structure; contained 47 items related to characteristics of antenatal clinic. The items covered the infrastructure, supplies & equipment, drugs, and intravenous fluids which had its sub-items. Each item was recorded as available & adequate, available & inadequate and not available. Scoring system for the first part of the first tool: score (2) for available & adequate, score (1) for available & inadequate, and score (0) for not available.

Part 2:

The second part regarding the process: contained 16 items which had its sub-items related to nurses practices at the antenatal clinics such as maternity booking and registration, treated the woman with kindness, respect, and dignity, allowed the woman to make informed decisions about her care, good communication skills, antenatal assessment and identification of pregnancy complications. As well as establishment of referral path for risky women, health education, documentation and application of infection control measures.

Each item was recorded as either done or not done. Scoring system for the second part: score (2) for correctly done, score (1) for incorrectly done, and score (0) for not done.

Tool II: Structured Interview Schedule: This tool included two parts:

Part (1):

It included socio-demographic data such as age, educational level, occupation, and monthly family income. Family history, reproductive history such as number of pregnancy, number of delivery, number of abortion, and history about the current pregnancy.

Part (2):

It was adopted from (Sabry et al., 2017) and used to assess the women's satisfaction regarding ANC services (outcome) by using 5 points Likert scale. It consisted of 14 items.

The scoring system included score (5) for strongly agree, score (4) for agree, score (3) for uncertain, score (2) for disagree, and score (1) for strongly disagree.

- **Validity:** Tools were tested for content related validity by a professor and consultant of public health and community medicine, and 3 experts in the field of Obstetrics and Gynecology Nursing. Recommended modification and reconstruction of the tools were done.
- **Reliability** of the study tools was calculated by Cronbach's Alpha Test in statistical package for Social Science (SPSS) version 21 at the end of the pilot study which revealed that 0.80 was the test result for the Observational checklist of the structure domain of the quality of ANC and 0.90 for the Observational checklist of process domain. Moreover, 0.89 was the reliability test for the assessment of women's satisfaction regarding the ANC services (outcome) questionnaire.

Ethical consideration:

- Official approval was obtained from the directors of the studied hospitals to implement the study after explanation of the aim of this study.
- Ethical approval was obtained from the Research & Ethics Committee at the faculty of Nursing, Mansoura University to implement the study.
- Written informed consents were taken from all the women participating in the study after the purpose of the study was explained to them.
- The participants were reassured about the confidentiality & privacy of the obtained information.
- The participants were informed about their rights to refuse participations or withdraw at any time.

Pilot study:

- The study tools were applied on 10% of total sample size (38 pregnant women) before starting the data collection. The purposes of pilot study were to assess validity of study tool, to determine feasibility and practicability, understand the ability of data collection and detect any problems prior to data collection, and to estimate the time needed to complete the tool. Sample size of pilot study excluded from the total sample size.

Field work:

1. This study was carried out in the period from the beginning of July 2019 to the end of January 2020, to collect the data needed for assessment of the quality of ANC services and observe the nurse's practices at the antenatal clinics of the studied hospitals after obtaining the official permission from the directors of the hospitals to carry out the study.
2. The researcher introduced herself to the health care providers and to the women, explained the aim of the study and obtained their written consent to participate in the study after assuring the confidentiality of data.
3. Data were collected according to the work days of antenatal clinics to studied hospitals three days per week from 9 a.m. to 1 p.m. until the calculated sample of pregnant women were obtained.
4. The researcher attended Saturday at Mansoura University Hospital, Monday at Mansoura Old General Hospital and Wednesday at Mansoura New General Hospital.
5. Data were gathered by the researcher through an observational checklist that measured the quality of ANC services (structure and process) and structured interview schedule with the pregnant women.

Data analysis:

The collected data were organized, coded, transferred into especially designed formats to be suitable for the computer entry process. The statistical analysis was done by using the SPSS program (statistical package for the social science) version 21. The data were properly tabulated and presented. By using descriptive statistics in the form of frequencies and percentages for quantitative data, and the Chi-square test (χ^2) was used in the association between categorical variables. Continuous variable was presented as Mean \pm SD (standard deviation). The difference in this study was considered statistically significant at P-value $<$ 0.05 and highly statistically significant at P-value $<$ 0.001.

6. Results:**Table (1):** Socio-demographic characteristics of pregnant women in the studied hospitals

Variable	Hospitals						Total		Chi ²	P-value
	MUH		MNGH		MOGH		N	%		
	N	%	N	%	N	%				
Age (years)										
18 > 25	40	31.3	36	28.1	42	32.8	118	30.7	1.579	0.813
25 > 30	71	55.5	79	61.7	72	65.3	222	57.8		
30 \geq 35	17	13.3	13	10.2	14	10.9	44	11.5		
Mean \pm SD = 1.81 \pm 0.621										
Residence										
Rural	87	68.0	90	70.3	93	72.7	270	70.3	0.674	0.714
Urban	41	32.0	38	29.7	35	27.3	114	29.7		
Level of woman education										
Can't read and write	3	2.3	11	8.6	8	6.3	22	5.7	3.829	0.700
Basic	27	21.1	16	12.5	32	25.0	75	19.5		
Secondary	60	46.9	65	50.8	56	43.8	181	47.1		
University	38	29.7	36	28.1	32	25.0	106	27.6		
Level of husband education										
Can't read and write	3	2.3	9	7.0	12	9.4	24	6.3	7.589	0.270
Basic	32	25.0	30	23.4	36	28.1	98	25.5		
Secondary	62	48.4	60	46.9	58	45.3	180	46.9		

University	31	24.2	29	22.7	22	17.2	82	21.4		
Occupation										
Housewife	94	73.4	97	75.8	103	80.5	294	76.6	1.829	0.401
Employee	34	26.6	31	24.2	25	19.5	90	23.4		
Monthly Family Income										
Enough	53	41.4	58	45.3	61	47.7	172	44.8	1.032	0.597
Not enough	75	58.6	70	54.7	67	52.3	212	55.2		

(*) P is statistically significant if ≤ 0.05 (**) P is highly statistically significant if < 0.001 MUH = Mansoura University Hospital MNGH= Mansoura New General Hospital MOGH= Mansoura Old General Hospital

Table (1) presents socio-demographic characteristics of 384 pregnant women. (57.8%) of pregnant women's age at the studied hospitals was ranged from 25> 30 years old with mean \pm SD 1.81 ± 0.621 and (70.3%) of them were from rural areas. Regarding to education (47.1%) and (46.9%) respectively of pregnant women and their husbands were secondary education and (76.6%) were housewives. In relation to monthly family income (55.2%) of them reported that family income was not enough. There was no statistical significant difference among pregnant women at all studied hospitals regarding their socio-demographic characteristics.

Table (2): Distribution of Characteristics of Antenatal Clinics (Structure Domain) among the Studied Hospitals

Items	Hospitals	Available & Adequate		Available & Inadequate		Not Available	
		N	%	N	%	N	%
Infrastructure (16 items)	MUH	14	87.5	0	0.0	2	12.5
	MNGH	12	75.0	3	18.7	1	6.2
	MOGH	9	56.2	3	18.7	4	25.0
Supplies & Equipment (19 items)	MUH	17	89.5	0	0.0	2	10.5
	MNGH	14	73.6	2	10.5	3	15.7
	MOGH	12	63.1	3	15.7	4	21.0
Drugs (9 items)	MUH	3	33.3	0	0.0	0	0.0
	MNGH	3	33.3	0	0.0	0	0.0
	MOGH	3	33.3	0	0.0	0	0.0
Intravenous fluids (3 items)	MUH	0	0.0	0	0.0	0	0.0
	MNGH	0	0.0	0	0.0	0	0.0
	MOGH	0	0.0	0	0.0	0	0.0

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Table (2) shows that Mansoura University Hospital achieved a higher percentage (87.5%) regarding the availability of infrastructure compared to (75%) and (56.2%) respectively of Mansoura New General and Mansoura Old General Hospitals. As regards to supplies and equipment, again Mansoura University Hospital achieved a higher percentage (89.5%). On the other hand, only (33.3%) of drugs were available and adequate and none of the intravenous fluids were available at all studied hospitals. It is clear that Mansoura University Hospital achieved a higher score of structure domain among the studied hospitals.

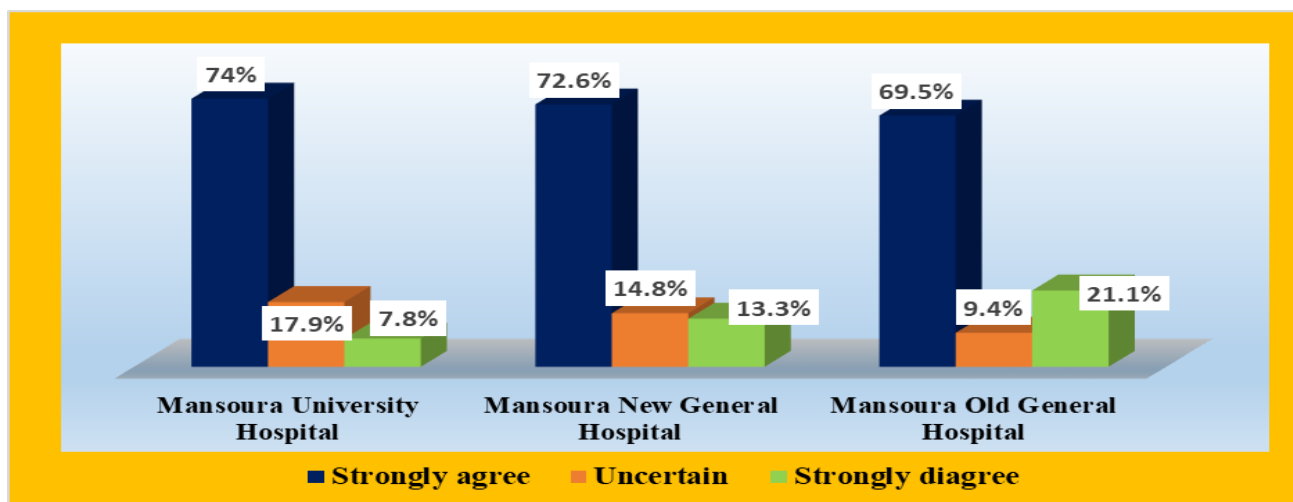


Figure (1): Distribution of Women's Satisfaction regarding Antenatal Care Services among Studied Hospitals.

Figure (1) presents that more than two-thirds of pregnant women at all studied hospitals strongly agreed with antenatal care services received.

Table 3: Nursing Practices Regarding Registration and Nursing Activities at the Studied Hospitals

Table 3: Nursing Practices Regarding Registration and Nursing Activities at the Studied Hospitals

Items		Hospital Name						Total		Significance test	
		MUH		MNGH		MOGH		N	%	Chi ²	P-value
		N	%	N	%	N	%				
Booking and registration	Correct done	128	100	128	100	128	100	384	100	-	-
	Not done	16	12.5	14	10.9	11	8.6	41	10.7	5.144	0.273
Good communication skills	Correct done	112	85.9	114	89.1	117	91.4	341	88.8		
	Not done	15	11.7	21	16.4	18	14.1	54	14.1	0.342	0.843
Assistance in history taking	Correct done	113	88.3	107	83.5	110	85.9	330	85.9		
	Not done	19	14.8	43	33.5	27	21.1	89	23.2	9.134	0.010*
Explaining steps for each procedure	Correct done	109	85.1	85	66.4	101	78.9	295	76.8		
	Not done	128	100	128	100	128	100	384	100	-	-
Measuring weight & blood pressure	Correct done	128	100	128	100	128	100	384	100		
	Not done	0	0.0	11	8.6	25	19.5	36	28.1	-	-
Measuring height & temperature	Correct done	128	100	117	91.4	103	80.5	348	90.6		
	Not done	128	100	128	100	128	100	384	100	-	-
Maintaining privacy & confidentiality	Correct done	110	85.9	94	73.4	97	75.8	301	78.4		
	Not done	18	14.1	34	26.6	31	24.2	83	21.6	-	-
Providing health education about danger signs	Correct done	110	85.9	94	73.4	97	75.8	301	78.4		
	Not done	18	14.1	34	26.6	31	24.2	83	21.6	-	-

(*) P is statistically significant if ≤ 0.05 (**) P is highly statistically significant if < 0.001 MUH = Mansoura University Hospital MNGH= Mansoura New General Hospital MOGH= Mansoura Old General Hospital

Table (3): clarifies that all studied hospitals competent achieved (100%) the items regarding “booking and registration; measuring weight and blood pressure” While all studied hospitals did not achieved (0%) the item regarding “measuring height and temperature”. The table highlighted that there was a highly significant difference regarding the item “maintaining privacy and confidentiality” and Mansoura University Hospital competent achieved it among all studied hospitals and achieved a higher score regarding the item “providing health education about danger signs”.

Table 4: Level of Women Satisfaction Regarding the Clinic Environment among the Studied Hospitals

N	Item	Hospital	Satisfaction n = 384										Significance test	
			Strongly Disagree		Disagree		Uncertain		Agree		Strongly Agree		Chi ²	P-Value
			N	%	N	%	N	%	N	%	N	%		
1	The clinic is clean and has good ventilation	MUH	0	0.0	3	2.3	6	4.7	72	56.3	47	36.7	66.232	0.000**
		MNGH	0	0.0	9	7.1	16	12.5	69	53.8	34	26.6		
		MOGH	0	0.0	19	15.0	10	7.8	85	66.9	7	5.6		
2	Waiting area was adequate & with seats	MUH	12	9.4	6	4.7	5	3.9	59	46.1	46	35.9	91.227	0.000**
		MNGH	3	2.3	20	15.6	2	1.6	61	47.1	42	32.8		
		MOGH	1	0.8	71	55.4	4	3.1	39	30.4	13	10.2		
3	Waiting time was fair	MUH	3	2.3	37	45.5	22	17.2	58	28.9	8	6.3	24.820	0.002*
		MNGH	1	0.8	31	24.2	8	6.3	63	49.2	25	19.5		
		MOGH	0	0.0	23	18.0	12	9.4	74	57.8	19	14.8		
4	You want to continue the rest ANC visits in this health facility	MUH	0	0.0	10	7.8	1	0.8	76	59.4	41	32.0	49.580	0.000**
		MNGH	0	0.0	16	12.5	10	7.8	89	69.5	13	10.2		
		MOGH	0	0.0	18	14.1	4	3.1	94	73.4	6	4.7		
5	You recommend your relatives to attend their antenatal visit in this facility	MUH	0	0.0	10	7.8	1	0.8	65	50.8	52	40.6	31.483	0.000**
		MNGH	0	0.0	17	13.3	4	3.1	80	62.5	27	21.1		
		MOGH	0	0.0	25	19.5	3	2.3	76	59.4	23	18.0		
6	Generally you are satisfied with the services provided to you	MUH	0	0.0	10	7.8	25	19.5	39	30.5	78	60.9	41.418	0.000**
		MNGH	0	0.0	11	8.6	13	10.2	57	44.5	56	43.8		
		MOGH	0	0.0	26	20.3	2	1.6	69	53.9	30	23.4		
7	Access to the hospital is easy	MUH	3	2.4	14	10.9	5	3.9	67	52.3	39	30.4	46.075	0.000**
		MNGH	0	0.0	17	13.3	9	7.0	62	48.4	36	28.1		
		MOGH	0	0.0	27	21.1	10	7.8	68	53.1	31	24.2		
8	Women participate in the care provided and treatment	MUH	2	1.6	15	11.7	1	0.8	66	51.6	40	31.3	32.297	0.000**
		MNGH	0	0.0	12	9.4	10	7.8	84	65.6	23	18.0		
		MOGH	0	0.0	27	21.1	4	3.1	80	62.5	11	8.6		

Table (4) describes that there was a highly significant difference regarding all items of clinic environment and Mansoura University Hospital achieved a higher percentage $P = 0.000$ except for the item “waiting time was fair”, it can be seen that less than half of pregnant women (45.5%) were disagreed $P = 0.002$. Regarding the item “waiting area was adequate with seats” It is clear that there was a highly significant difference $P = 0.000$ and more than half of women (55.4%) at Mansoura Old General Hospital were disagreed compared to other studied hospitals.

6. Discussion:

Improving maternal and fetal health can only be achieved through provisions quality health care during pregnancy, childbirth, and postpartum **Ehiri (2015); Kassaw, Debie, & Geberu (2020)**. The aim of the current study was to evaluate quality of ANC services among pregnant women at Mansoura Governmental Hospitals. According to the results of the current study it can be seen that the score of quality structure of antenatal clinics among the studied hospitals was good in Mansoura University Hospital compared to moderate score in Mansoura New General and Mansoura Old General Hospitals.

These study findings are congruent with a study conducted by **Albert et al (2020)** in two large hospitals in Pakistan, to assess the quality of ANC services and found that the quality structure in the two hospitals was good. Also, other studies conducted by **Denu (2017); Bello (2018); Odetola & Fakorede (2018)** found that the quality structure was good.

In addition, study findings are incongruent with **Muzemil (2014)** in Addis Ababa and **Abate, Salgado, & Bayou (2015)** in Ethiopia who found that the quality structure was moderate or not optimal. On the other hand, a study conducted by **Sharma et al (2017)** to determine the Inequities in the quality of antenatal and delivery care in Kenya, found that the quality structure was low. Also, Egyptian study conducted by **Ismail and Essa (2017)** and a recent study conducted by **Kassaw et al (2020)** found that the quality structure of ANC was poor.

The findings of the present study revealed that the majority of infrastructure was available and adequate and it was clear that Mansoura University Hospital achieved a higher percentage. This finding is supported by a study conducted by **Sugunadevi G (2017)** in India to assess the quality of ANC services and found that the majority (80%) of infrastructure was available in most of the subcentres. Also, a similar study conducted by **Ibrahim, Bakari, Abdullahi, & Bukar (2017)** in Nigeria found that infrastructure was available. These study findings are inconsistent with Egyptian study conducted by **Soliman (2015)** at Tanta city, Egypt to assess the satisfaction of rural pregnant women with ANC provided found that minority (15.7%) of infrastructure was available. Also, **Ismail & Essa (2017)** study in El-Beheira Governorate, Egypt found that only (20%) of infrastructure was available.

Concerning the nursing practice at the antenatal clinic, the current study findings showed that all studied hospitals competent achieved the item regarding “measuring weight and blood pressure” and not achieved the item regarding “measuring height and temperature”. These findings are in agreement with **Fagbamigbe & Idemudia (2015)** in Nigeria and **Bastola et al (2018)** in Nepal they found the same item competent achieved and the height and temperature measurement was not achieved. On the other hand, a study conducted by **Rurangirwa et al (2018)** to assess the quality of ANC services in Rwanda found that more than one-third of health care providers measured height, and nearly half measured weight and blood pressure

The present study showed that Mansoura University Hospital competent achieved the item regarding “maintaining privacy” among all studied hospitals. This finding is in agreement with a study conducted by **Yabo et al (2015)** in Ethiopia found that the majority of health care providers were maintained privacy. And in disagreement with a study in Nepal conducted by **Joshi et al (2015)** found that more than half of nurses were not maintained privacy.

The current study findings illustrated that the overall satisfaction with ANC services among pregnant women at all studied hospitals was high, more than two-thirds of pregnant women strongly agreed with ANC services received. Pregnant women attending at Mansoura University Hospital achieved a higher percentage of satisfaction level and Mansoura Old General Hospital achieved the lowest one.

This finding is consistent with other studies conducted by **Rahman et al (2016); Ibrahim et al (2017); AbuHashima et al (2018); Fseha (2019)** found that most of the pregnant women were highly satisfied with ANC they received. This finding is in disagreement with other studies conducted by **Ismail & Essa (2017); Mekonnen et al (2017); Ranabhat et al (2019)** found that the overall satisfaction of ANC services was low.

Concerning the women's satisfaction with the clinic environment, the present findings of this study illustrated that more than half of pregnant women at all studied hospitals agreed with cleanliness and ventilation of antenatal clinics. Similarly, the study conducted in Ethiopia by **Lakew et al (2018)** found that good satisfaction due to ventilation and cleanliness of the facility was nearly more than half (55.8%) of the participants.

Furthermore, a study conducted by **Paudel et al (2015)** in Nepal found that more than two-thirds of the clients were satisfied with the cleanliness, ventilation of the facility. On the other hand, this finding is inconsistent with **Mekonnen et al (2017)** in Ethiopia found that more than three-quarters (75.5%) of mothers were dissatisfied with cleanliness and ventilation of the facility.

The findings of the current study showed that nearly half of pregnant women at Mansoura University Hospital and Mansoura New-General Hospital were satisfied with the waiting area of the antenatal clinics. This is in the same line with the findings of Egyptian study conducted by **Soliman (2015)** at Tanta city to assess the satisfaction of pregnant women with ANC services found that nearly two-thirds (62.1%) of women were satisfied with the waiting area.

Moreover, a study conducted by **Abate et al (2015)** in Ethiopia found that more than half (54%) of women were satisfied with the waiting area. On the contrary, more than half of the pregnant women at Mansoura Old General Hospital disagreed with the waiting area in the antenatal clinic. Similarly, a study finding of **Mekonnen et al (2017)** in Ethiopia found that two-thirds of women were dissatisfied with the waiting area as it was inadequate and without seats.

The present study findings revealed that two-thirds of pregnant women at Mansoura New-General Hospital and Mansoura Old General Hospital agreed with the waiting time in the antenatal clinics this may be due to less overcrowding of pregnant women at these clinics. This study finding was supported by similar studies conducted by **Yabo et al (2015); Dhahi et al (2015); Rahman et al (2016); Ibrahim et al (2017); Fseha (2019)** found that the majority of women were satisfied with the waiting time.

On the other hand, nearly half of the pregnant women at Mansoura University Hospital were dissatisfied with long waiting time in the antenatal clinic due to an inadequate number of staff and overloading of women in the clinic during morning time. This study finding is supported by similar studies, conducted by **Paudel et al (2015); Do et al (2017); Chimatiro et al (2018)** found that there was a long waiting time for the ANC due to the integration of the service with family planning respondents were waiting for the ANC clinic to start.

The finding of this study showed that the majority of women were generally satisfied with the services provided, wanted to continue the rest of antenatal visits at these hospitals, and recommended their relatives to attend antenatal visits in these hospitals. These findings are similar to **Tesfaye et al (2017)** in Ethiopia to assess maternal ANC satisfaction found that nearly three-quarters of women were generally satisfied with the service provided and recommended their family and friends to attend their antenatal visits at the facility. The finding of this study highlighted that more than half of women at all studied hospitals agreed with their participation in the

care received. This supported by a study conducted by Ethiopian studies conducted by **Fesseha et al (2014)** and **Yabo et al (2015)** found that two-thirds (66.1%) and more than half (55.5%) of pregnant women respectively were satisfied by their participation in their care.

6. Conclusion

This study concluded that, the quality structure domain of Antenatal Clinics at Mansoura University Hospital was good compared to Mansoura New General and Mansoura Old General Hospitals which was moderate. Besides that, more than two-thirds of pregnant women at all studied hospitals were strongly satisfied with antenatal care services received.

7. Recommendations

Accordingly, the following recommendations were suggested:

- An adequate staff should be available to avoid long waiting times in Antenatal clinics.
- Health care providers should focus on the area of health education, listening actively to pregnant women, providing sufficient information about their pregnancy, and explaining the results of the investigations individually.
- Available and adequate waiting area at hospitals affiliated to the Ministry of Health and population to increase the utilization of ANC services and thus improve the satisfaction of pregnant women.
- A detailed periodic assessment of pregnant women's satisfaction regarding the quality of antenatal care services at antenatal clinics.
- Explore obstacles that may affect the capacity of the health care system to achieve high-quality antenatal care.

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