



Evaluating the Satisfaction level of both clients and care providers regarding the provided services of Mobile clinics in rural area of Sohag governorate, Upper Egypt.

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ABSTRACT

Background: In Egypt, the "Mobile Clinics" project has started in 1997 to provide many services including non-fee family planning/reproductive health services. Higher patient satisfaction is central to the success of any healthcare system. **Objective:** To assess client satisfaction with mobile clinics at Elbelina district - Upper Egypt aiming to improve the services introduced by it. **Methods:** This descriptive cross-sectional study was conducted on 428 clients who attended the mobile clinics in El-Ballina district (Sohag) during the period January–June 2020 and fulfilled inclusion and exclusion criteria. A questionnaire was designed to assess the satisfaction of clients with the services provided by mobile clinics and the enrolled participants were interviewed by well-trained interviewers in the mobile clinics during the scheduled break times. **Results:** Regarding the overall satisfaction among the study population, around 44% of the cases were satisfied with the reception services, 39% were satisfied with the attention. Regarding the overall satisfaction regarding the different units and services, we found that cleanliness and readiness had the highest satisfaction rate among the included participants (53.3%), followed by the pharmacy (40.7%), then customer services (27.3%), laboratories (12.85%), health insurance office (7%) and lastly radiology center (1.9%). 74.8% of the enrolled clients were females and 83.2% of them were married. 79.4% of the visits were repeated, 75.9% of them were non-scheduled and 53% of clients attended the mobile clinics for family planning services. **Conclusion:** This indicates that the mobile clinic service represents an important model for the delivery of healthcare to communities in geographically and topographically inaccessible areas.

Keywords: Mobile clinics; Client satisfaction.

INTRODUCTION

Mobile clinics (MCs) represent an integral component of the healthcare system that serves vulnerable populations and promotes high-quality care at a low cost. They are customized vehicles that travel to the heart of communities, both urban and rural, and provide prevention and healthcare services where people work, live, and play. MCs improve ac-

ss for vulnerable populations, bolster prevention and chronic disease management and reduce costs. They overcome barriers of time, money, and trust and provide community-tailored care to vulnerable populations^[1].

MCs can offer primary care, prevention screenings, and dental services. Many clinics also provide specialty care such

as mammography, mental health monitoring, and ophthalmology checks [2]. MCs target mainly minority groups [3]. Other target populations of MHCs include vulnerable communities such as the homeless, displaced populations, immigrants, migrant workers, the underinsured, and children. And even though men have been found to exhibit poorer healthcare-seeking behaviors, MCs were found to be able to attract male patients, who make up 50% of MHCs' clients.^[1] MCs are an innovative model of healthcare delivery that could help alleviate health disparities in vulnerable populations and individuals with chronic diseases [4]. By opening their doors directly into communities and leveraging existing community assets, MCs can offer tailored, high-impact, and affordable health care that responds dynamically to the community's evolving needs^[2]. Patient satisfaction is an important measure of healthcare quality as it offers information on the provider's success at meeting the expectations of most relevance to the client^[5] and a key determinant of patients' perspective behavioral intention.^[6] Patient satisfaction is correlated with important outcomes, such as superior compliance, decreased utilization of medical services, less malpractice litigation, and better prognosis.^[5] Customers are satisfied whenever they consistently receive a perfect product; delivered by a caring, friendly person; in a timely fashion, and with the support of an effective problem resolution process (as any of the previous three elements may misfire)^[7]. In Egypt, the "Mobile Clinics" project has started in 1997 to provide many services including non-fee family planning/reproductive health services for areas lying 3 kilometers from the nearest health unit.^[8] However, there is a paucity of studies on the satisfaction of patients with mobile clinics in Egypt, particularly at the Sohag governorate.

This study was conducted aiming to assess client satisfaction with mobile clinics at Elbelina district - Upper Egypt aiming to improve the services introduced by it.

SUBJECTS AND METHODS

This descriptive cross-sectional study was conducted on 428 clients who attended the mobile clinics in El-Baliana district (Sohag) during the period January – June 2020 and fulfilled inclusion and exclusion criteria.

Inclusion criteria: Age above 18 years, both sexes and agree to participate in the study.

Exclusion criteria: Age below 18 years or refuse to participate in the study.

Sample size calculation :

The sample size was calculated using the following formula: ^[9]

$$n = \left[\frac{Z_{\alpha/2}}{E} \right]^2 * P(1 - P)$$

So, by calculation, the sample size was equal to 231 clients with a 10% as drop-out rate, so a total sample size of 255 clients would be adequate.

Methods:

A questionnaire was designed to assess the satisfaction of clients with the services provided by mobile clinics. The enrolled participants were interviewed by well-trained interviewers in the mobile clinics during the scheduled break times. The questionnaire was pilot-tested on a sample of 20 participants which was not included in the main study. The pilot study aimed to test the clarity, practicability, and internal consistency of the questionnaire, and no changes were made based upon its results.

The questionnaire included four sections:

1. Sociodemographic data: age, sex, residence, occupation, and marital status.
2. Details of the mobile clinic visit: Type of visit (first or repeated), the reason for the visit (service/check-up or treatment), clinic visited (Family Planning, Internal Medicine, Dentistry, Obstetrics & Gynecology, or Surgery) and planning of visit (scheduled by phone or non-scheduled).
3. Satisfaction with reception, registration, waiting and service handlers: Reception services (satisfying, average, or unsatisfying), registration process (simple or complicated), waiting period (acceptable or unacceptable), attention and professionalism of the nursing staff (satisfying, average, or unsatisfying), attention and professionalism of physicians (satisfying, average, or unsatisfying).
4. Satisfaction with services and units: Satisfaction was evaluated ranked on a 3-point Likert scale (satisfying, average, or unsatisfying): laboratories, radiology center, health insurance office, pharmacy, cleanliness and readiness, and customer services.

Data management :

Data were analyzed using IBM SPSS® software for Windows version 23 (IBM Corp., Armonk, NY, USA). Quantitative variables were presented as mean \pm standard deviation (SD), and qualitative variables were described as frequencies (percentages). The student's t-test was used to compare means between two groups, and the Chi-square test was used to compare qualitative variables between groups. A P-value of less than 0.05 was considered statistically significant.

RESULTS

The main socio-demographic characteristics of the enrolled clients are shown in table (1) and the criteria of their visits are shown in table (2).

Regarding the overall satisfaction among the study population, around 44% of the cases were satisfied with the reception services, 39% were satisfied of the attention and professionalism of the nursing staff and nearly 51% were satisfied of the attention and professionalism of the physician. The period of waiting was acceptable for the majority of the participants (Table 3).

Regarding the overall satisfaction regarding the different units and services, we found that cleanliness and readiness had the highest satisfaction rate among the included participants (53.3%), followed by the pharmacy (40.7%), then customer services (27.3%), laboratories (12.85%), health insurance office (7%) and lastly radiology center (1.9%) (Table 4).

A statistically significant association was found between sex and satisfaction level of registration services ($P=0.026$). More males than females (97.2% and 90.6%, respectively) consider the registration process simpler, whereas only 2.8% of male participants think the process is complicated compared to 9.4% among females (Table 5).

A statistically significant association was found between sex and satisfaction with the health insurance office ($P=0.033$). More females were unsatisfied (54.1%) compared to 44.5% among males. Meanwhile, the associations between sex and satisfaction with reception, waiting, handling, laboratories, pharmacy, radiology center, cleanliness, readiness, and customer services were not found to be statistically significant (Table 6).

Changes in residency were associated with statistically significant changes in the satisfaction levels of reception services ($P=0.012$). The majority of urban area residents reported 'satisfied' or 'average', whereas the majority of rural area residents were averagely satisfied. The residency area was also associated with the satisfaction of the levels of att-

ention and professionalism of the nursing staff (P=0.005). The majority of urban residents were satisfied whereas the majority of the rural areas residents were averagely satisfied. The satisfaction of the attention and professionalism of the physician was also significantly associated with the type of residency (P=0.011). All urban and most semi-urban area residents were satisfied with the physicians' attention and professionalism whereas about half of the rural areas residents were satisfied (Table 7). Changes in residency were also associated with statistically significant changes in the satisfaction levels of the radiology center (P<0.001) where most urban and rural areas residents were unsatisfied (60% and 80.2%; respectively). However, more than half of the semi-urban area residents were averagely satisfied. Health insurance office satisfaction was also a significant factor associated with residency (P=0.009), where most of the rural area residents were unsatisfied (54%) compared to 50% among urban and only 31.8% among semi-urban residents. The majority of semi-urban area residents were satisfied

with the pharmacy, which is opposite among the urban and rural residents (P=0.049). Cleanliness and readiness satisfaction were significantly associated with the residency area (P=0.011), where the greater portion of the urban (80%) and semi-urban (75%) areas residents were satisfied compared to rural area ones (50%). Satisfaction with customer services was associated with the residency area (P=0.040). Most of the residents of the urban and rural areas were averagely satisfied, while half of the semi-urban residents were satisfied (Table 8).

The majority of participants are averagely satisfied with the reception services, attention, and professionalism of the nursing staff, laboratories, pharmacy, and customer services. However, no statistically significant associations were found (Table 9).

The radiology center was highly unsatisfying to all age groups, and health insurance was unsatisfying mostly for participants aged 18-50 years. Meanwhile, no statistically significant associations were found between age groups and any of the services (Table 10).

| Variables | | Frequency (N=428) | Percent |
|----------------|---------------|-------------------|---------|
| Sex | Male | 108 | 25.2 |
| | Female | 320 | 74.8 |
| Nationality | Egyptian | 428 | 100.0 |
| | Non-Egyptian | 0 | 0.0 |
| Age | 18 – 35 years | 194 | 45.3 |
| | 36 – 50 years | 205 | 47.9 |
| | 51 – 64 years | 29 | 6.8 |
| Marital status | Single | 36 | 8.4 |
| | Married | 356 | 83.2 |
| | Divorced | 5 | 1.2 |
| | Widowed | 31 | 7.2 |
| Residency | Urban | 10 | 2.3 |
| | Semi-urban | 44 | 10.3 |
| | Rural | 374 | 87.4 |
| Occupation | Employed | 149 | 34.8 |
| | Unemployed | 279 | 65.2 |

Table (1): Characteristics of the mobile clinic clients:

| Variables | | Frequency (N=428) | Percent |
|----------------------|-------------------------|-------------------|---------|
| Type of visit | First time | 88 | 20.6 |
| | Repeated | 340 | 79.4 |
| Reason for the visit | Service/Check-up | 369 | 86.2 |
| | Treatment | 59 | 13.8 |
| Clinics visited | Family planning section | 227 | 53.0 |
| | Internal medicine | 126 | 29.4 |
| | Dentistry | 35 | 8.1 |
| | Obstetrics & gynecology | 27 | 6.3 |
| | Pediatrics | 11 | 2.6 |
| | Surgery | 2 | 2.5 |
| Planning of visit | Scheduled (by phone) | 103 | 24.1 |
| | Non-scheduled | 325 | 75.9 |

Table (2): Criteria of visits :

| Variables | | No (%) |
|--|----------------|--------------|
| Reception services | Unsatisfying | 3 (0.7%) |
| | Average | 236 (55.14%) |
| | Satisfying | 189 (44.16%) |
| Registration | Simple | 395 (92.29%) |
| | Complicated | 33 (7.71%) |
| Period of waiting | Not acceptable | 29 (5.78%) |
| | Acceptable | 399 (93.22%) |
| Attention and professionalism of the nursing staff | Unsatisfying | 5 (1.17%) |
| | Average | 257 (60.05%) |
| | Satisfying | 166 (38.79%) |
| Attention and professionalism of the physician | Unsatisfying | 8 (1.87%) |
| | Average | 202 (47.20%) |
| | Satisfying | 218 (50.93%) |

Table (3): Satisfaction of reception, registration, waiting and attention:

| Variables | | No (%) |
|---------------------------|--------------|--------------|
| Laboratories | Unsatisfying | 101 (23.60%) |
| | Average | 272 (63.55%) |
| | Satisfying | 55 (12.85%) |
| Radiology center | Unsatisfying | 325 (75.93%) |
| | Average | 95 (22.20%) |
| | Satisfying | 8 (1.87%) |
| Health insurance office | Unsatisfying | 221 (51.63%) |
| | Average | 177 (41.36%) |
| | Satisfying | 30 (7.01%) |
| Pharmacy | Unsatisfying | 10 (2.34%) |
| | Average | 244 (57.01%) |
| | Satisfying | 174 (40.65%) |
| Cleanliness and readiness | Unsatisfying | 8 (1.87%) |
| | Average | 192 (44.86%) |
| | Satisfying | 228 (53.27%) |
| Customer services | Unsatisfying | 10 (2.34%) |
| | Average | 300 (70.09%) |
| | Satisfying | 117 (27.34%) |
| | Not used | 1 (0.23%) |

Table (4): Satisfaction of services and units by mobile clinic patients:

| Variables | | Sex | | P-value |
|--|----------------|-------------|-------------|--------------|
| | | Male | Female | |
| Reception services | Unsatisfying | 0 (0.0%) | 3 (0.9%) | 0.585 |
| | Average | 61 (56.5%) | 175 (54.7%) | |
| | Satisfying | 47 (43.5%) | 142 (44.4%) | |
| Registration | Simple | 105 (97.2%) | 290 (90.6%) | 0.026 |
| | Complicated | 3 (2.8%) | 30 (9.4%) | |
| Period of waiting | Not acceptable | 4 (3.7%) | 25 (7.8%) | 0.141 |
| | Acceptable | 104 (96.3%) | 295 (92.2%) | |
| Attention and professionalism of nursing staff | Unsatisfying | 1 (0.9%) | 4 (1.2%) | 0.265 |
| | Average | 58 (53.7%) | 199 (62.2%) | |
| | Satisfying | 49 (45.4%) | 117 (36.6%) | |
| Attention and professionalism of the physician | Unsatisfying | 2 (1.9%) | 6 (1.9%) | 0.976 |
| | Average | 50 (46.3%) | 152 (47.5%) | |
| | Satisfying | 56 (51.9%) | 162 (50.6%) | |

Table (5): Relationship between sex and satisfaction of reception, registration, waiting, and attention:

| Variables | | Sex | | P-value |
|---------------------------|--------------|------------|-------------|--------------|
| | | Male | Female | |
| Laboratories | Unsatisfying | 24 (22.2%) | 77 (24.1%) | 0.234 |
| | Average | 65 (60.2%) | 207 (64.7%) | |
| | Satisfying | 19 (17.6%) | 36 (11.2%) | |
| Radiology center | Unsatisfying | 78 (72.2%) | 247 (77.2%) | 0.307 |
| | Average | 29 (26.9%) | 66 (20.6%) | |
| | Satisfying | 1 (0.9%) | 7 (2.2%) | |
| Health insurance office | Unsatisfying | 48 (44.5%) | 173 (54.1%) | 0.033 |
| | Average | 47 (43.5%) | 130 (40.6%) | |
| | Satisfying | 13 (12.0%) | 17 (5.3%) | |
| Pharmacy | Unsatisfying | 2 (1.9%) | 8 (2.5%) | 0.270 |
| | Average | 55 (50.9%) | 189 (59.1%) | |
| | Satisfying | 51 (47.2%) | 123 (38.4%) | |
| Cleanliness and readiness | Unsatisfying | 2 (1.9%) | 6 (1.9%) | 0.992 |
| | Average | 49 (45.3%) | 143 (44.7%) | |
| | Satisfying | 57 (52.8%) | 171 (53.4%) | |
| Customer services | Unsatisfying | 2 (1.9%) | 8 (2.5%) | 0.878 |
| | Average | 78 (72.2%) | 222 (69.4%) | |
| | Satisfying | 28 (25.9%) | 89 (27.8%) | |
| | Not used | 0 (0.0%) | 1 (0.3%) | |

Table (6): Relationship between sex and satisfaction of services and units by mobile clinic patients :

| Variables | | Residency | | | P-value |
|--|----------------|-----------|-------------|------------|--------------|
| | | Urban | Rural | Semi-urban | |
| Reception services | Unsatisfying | 0 (%) | 3 (0.8%) | 0 (0.0%) | 0.012 |
| | Average | 3 (30.0%) | 218 (58.3%) | 15 (34.1%) | |
| | Satisfying | 7 (70.0%) | 153 (40.9%) | 29 (65.9%) | |
| Registration | Simple | 10 (100%) | 342 (91.4%) | 43 (97.7%) | 0.219 |
| | Complicated | 0 (%) | 32 (8.6%) | 1 (2.3%) | |
| Period of waiting | Not acceptable | 1 (10.0%) | 27 (7.2%) | 1 (2.3%) | 0.429 |
| | Acceptable | 9 (90.0%) | 347 (92.8%) | 43 (97.7%) | |
| Attention and professionalism of nursing staff | Unsatisfying | 0 (%) | 5 (1.3%) | 0 (0.0%) | 0.005 |
| | Average | 1 (10.0%) | 234 (62.6%) | 22 (50.0%) | |
| | Satisfying | 9 (90.0%) | 135 (36.1%) | 22 (50.0%) | |
| Attention and professionalism of the physician | Unsatisfying | 0 (%) | 8 (2.1%) | 0 (0.0%) | 0.011 |
| | Average | 0 (%) | 185 (49.5%) | 17 (38.6%) | |
| | Satisfying | 10 (100%) | 181 (48.4%) | 27 (61.4%) | |

Table (7): Relationship between residency and satisfaction of reception, registration, waiting, and service handlers :

| Variables | | Residency | | | P-value |
|---------------------------|--------------|-----------|-------------|------------|---------|
| | | Urban | Rural | Semi-urban | |
| Laboratories | Unsatisfying | 2 (20.0%) | 91 (24.3%) | 8 (18.2%) | 0.288 |
| | Average | 7 (70.0%) | 231 (61.8%) | 34 (77.2%) | |
| | Satisfying | 1 (10.0%) | 52 (13.9%) | 2 (4.6%) | |
| Radiology center | Unsatisfying | 6 (60.0%) | 300 (80.2%) | 19 (43.2%) | <0.001 |
| | Average | 4 (40.0%) | 67 (17.9%) | 24 (54.5%) | |
| | Satisfying | 0 (0.0%) | 7 (1.9%) | 1 (2.3%) | |
| Health insurance office | Unsatisfying | 5 (50.0%) | 202 (54.0%) | 14 (31.8%) | 0.009 |
| | Average | 5 (50.0%) | 143 (38.2%) | 29 (65.9%) | |
| | Satisfying | 0 (0.0%) | 29 (7.8%) | 1 (2.3%) | |
| Pharmacy | Unsatisfying | 0 (0.0%) | 10 (2.7%) | 0 (0.0%) | 0.049 |
| | Average | 6 (60.0%) | 221 (59.1%) | 17 (38.6%) | |
| | Satisfying | 4 (40.0%) | 143 (38.2%) | 27 (61.4%) | |
| Cleanliness and readiness | Unsatisfying | 0 (0.0%) | 8 (2.1%) | 0 (0.0%) | 0.011 |
| | Average | 2 (20.0%) | 179 (47.9%) | 11 (25.0%) | |
| | Satisfying | 8 (80.0%) | 187 (50%) | 33 (75.0%) | |
| Customer services | Unsatisfying | 0 (0.0%) | 9 (2.4%) | 1 (2.3%) | 0.040 |
| | Average | 7 (70.0%) | 272 (72.7%) | 21 (47.7%) | |
| | Satisfying | 3 (30.0%) | 92 (24.6%) | 22 (50.0%) | |
| | Not used | 0 (0.0%) | 1 (0.3%) | 0 (0.0%) | |

Table (8): Relationship between residency and satisfaction of services and units by mobile clinic patients:

| Variables | | Age groups | | | P-value |
|--|----------------|---------------|---------------|---------------|---------|
| | | 18 – 35 years | 36 – 50 years | 51 – 64 years | |
| Reception services | Unsatisfying | 1 (0.5%) | 2 (1.0%) | 0 (0.0%) | 0.879 |
| | Average | 108 (55.7%) | 114 (55.6%) | 14 (48.3%) | |
| | Satisfying | 85 (43.8%) | 89 (43.4%) | 15 (51.7%) | |
| Registration | Simple | 177 (91.2%) | 191 (93.2%) | 27 (93.1%) | 0.759 |
| | Complicated | 17 (8.8%) | 14 (6.8%) | 2 (6.9%) | |
| Period of waiting | Not acceptable | 13 (6.7%) | 12 (5.8%) | 4 (13.8%) | 0.281 |
| | Acceptable | 181 (93.3%) | 193 (94.2%) | 25 (86.2%) | |
| Attention and professionalism of nursing staff | Unsatisfying | 1 (0.5%) | 4 (2%) | 0 (0.0%) | 0.300 |
| | Average | 123 (63.4%) | 120 (58.5%) | 14 (48.3%) | |
| | Satisfying | 70 (36.1%) | 81 (39.5%) | 15 (51.7%) | |
| Attention and professionalism of the physician | Unsatisfying | 2 (1.0%) | 5 (2.5%) | 1 (3.5%) | 0.312 |
| | Average | 97 (50.0%) | 96 (46.8%) | 9 (31.0%) | |
| | Satisfying | 95 (49.0%) | 104 (50.7%) | 19 (65.5%) | |

Table (9): Relationship between age groups and satisfaction of reception, registration, waiting, and service handlers:

| Variables | | Age groups | | | P-value |
|-------------------------|--------------|---------------|---------------|---------------|---------|
| | | 18 – 35 years | 36 – 50 years | 51 – 64 years | |
| Laboratories | Unsatisfying | 50 (25.8%) | 46 (22.5%) | 5 (17.2%) | 0.501 |
| | Average | 118 (60.8%) | 136 (66.3%) | 18 (62.1%) | |
| | Satisfying | 26 (13.4%) | 23 (11.2%) | 6 (20.7%) | |
| Radiology center | Unsatisfying | 149 (76.8%) | 155 (75.6%) | 21 (72.4%) | 0.308 |
| | Average | 39 (20.1%) | 49 (23.9%) | 7 (24.1%) | |
| | Satisfying | 6 (3.1%) | 1 (0.5%) | 1 (3.5%) | |
| Health insurance office | Unsatisfying | 104 (53.6%) | 105 (51.2%) | 12 (41.4%) | 0.423 |
| | Average | 80 (41.2%) | 84 (41.0%) | 13 (44.8%) | |
| | Satisfying | 10 (5.2%) | 16 (7.8%) | 4 (13.8%) | |
| Pharmacy | Unsatisfying | 5 (2.6%) | 3 (1.5%) | 2 (6.9%) | 0.216 |
| | Average | 110 (56.7%) | 122 (59.5%) | 12 (41.4%) | |
| | Satisfying | 79 (40.7%) | 80 (39.0%) | 15 (51.7%) | |
| Cleanliness | Unsatisfying | 3 (1.6%) | 5 (2.5%) | 0 (0.0%) | 0.832 |
| | Average | 84 (43.3%) | 94 (45.8%) | 14 (48.3%) | |
| | Satisfying | 107 (55.1%) | 106 (51.7%) | 15 (51.7%) | |
| Customer services | Unsatisfying | 5 (2.6%) | 5 (2.5%) | 0 (0.0%) | 0.813 |
| | Average | 132 (68.0%) | 148 (72.1%) | 20 (69%) | |
| | Satisfying | 57 (29.4%) | 51 (24.9%) | 9 (31%) | |
| | Not used | 0 (0.0%) | 1 (0.5%) | 0 (0.0%) | |

Table (10): Relationship between age groups and satisfaction of services and units by mobile clinic patients :

DISCUSSION

Mobile clinics should work to provide high-quality healthcare services. One of the important measures of healthcare quality is the satisfaction of patients and healthcare providers. This indicates the extent to which the provided healthcare services meet the expectations of patients. Higher patient satisfaction is central to the success of any healthcare system^[1,9]. We aimed to assess the satisfaction of patients and healthcare providers with mobile clinics using a questionnaire study. This cross-sectional study was conducted between January 1 and June 31, 2020, at El-Ballina district /Sohag governorate- Egypt.

Regarding the overall satisfaction among the study population, around 44% of the cases were satisfied with the reception services, 39% were satisfied with the attention and professionalism of the nursing staff and nearly 51% were satisfied with the attention and professionalism of the physician. The period of waiting was acceptable for the majority of the participants which agrees with our previous results^[10].

Regarding the overall satisfaction regarding the different units and services, we found that cleanliness and readiness had the highest satisfaction rate among the included participants (53.3%), followed by the pharmacy (40.7%), then customer services (27.3%), laboratories (12.85%), health insurance office (7%) and lastly radiology center (1.9%) similar to our study^[10].

In the present study, the clients were generally satisfied with the process and service of mobile clinics. The percentage of satisfaction (satisfying and average) was over 90% for the reception, registration, waiting for time, attention and professionalism of nursing staff and physicians, pharmacy, cleanliness and readiness, and customer services. However, clients showed considerable dissatisfaction with certain services, particularly radiology centers (75.9%), health insurance offices (51.6%), and laboratories (23.6%). The different extent in satisfaction with the range of services offered indicates a need for more improvement in the services provided and for an ongoing process of determining

consumer satisfaction with the services and for gathering suggestions for improvement^[11]. The satisfaction of visitors to mobile clinics is generally good in different studies, except for some services. In a study on cluster mobile clinics for providing diabetes health services for Hispanic migrants in rural Minnesota and North Dakota, 566 clients were surveyed^[12]. The present study included 428 patients who visited the mobile clinic El-Ballina district during the period of the study. All patients were Egyptians and 74.8% of them were females. The predominance of females in this study is consistent with similar studies. On analyzing data from mobile clinics in Northern Haiti in 2010, results showed that two-thirds of the patients were females. This is by the cultural bias of females being in charge of family health^[12]. Also, in a Nigerian study that included 455 interviews with clients of mobile clinics, 67.9% of users were females^[13]. In a study from Malawi, significantly more females utilized services of mobile clinics, accounting for 62% of all client visits^[14]. In a cross-sectional study on 377 users of mobile health units in New Delhi (India), 65% of them were females^[15]. Moreover, in a recent study on mobile clinics in the USA, female clients represented a slight majority with each mobile clinic serving an average of 55% female clients and 44% male clients^[16]. In contrast, most participants in a survey study on satisfaction with mobile clinics service in a remote rural area of Saudi Arabia were males (90.3%). This could be attributed to Saudi cultural barriers that discourage participation in such surveys as well as visits to health facilities by women, except in urgent situations, and that require women to be accompanied by a male relative^[17].

Another possible explanation for the difference in participants' gender between our study and the Saudi study may be related to differences in the gender of

the healthcare providers. In our study, 65.3% of healthcare providers were females. In contrast, all healthcare providers in the Saudi study were males. This might have discouraged Saudi women to use mobile clinics; they might prefer to travel long distances to receive services from female healthcare providers. Therefore, recruiting female healthcare providers appears to be an important factor to overcome cultural barriers and encourage women to use mobile clinics particularly in highly conservative isolates^[17]. In the present study, most participants (93.2%) were between 18 and 50 years of age. Only 6.8% were between 51 and 64 years of age. A recent study reported the average age of clients of mobile clinics in the USA. The average percentage of clients between 0 and 17 years of age was 41%, between 18 and 44 years was 20%, between 45 and 64 years was 31%, and 65+ years was 11%.^[16] In a study from Malawi, children aged < 5 years accounted for 39% of total client visits to mobile clinics^[14]. In a Brazilian study on mobile ship clinics, 1036 households were surveyed with age groups 0–5 years (19.4%), 6–14 years (25.5%), 15–49 years (42.2%), and >49 years (12.9%)^[18]. In Aljasir & Alghamdi's^[17] study, the age of surveyed clients who visited the mobile clinics during the period of the study ranged between 16 – 76 years with a mean of 37.1 years. In Patro et al.^[15] study, 80% of visitors to mobile health clinics were aged 20–60 years. The variations among studies could be attributed to the differences in the goals and provided services by mobile clinics, which could target specific population age groups, as well as varied population demographics.

In the present study, 83.2% of mobile clinic clients were married. This is similar to Patro et al.^[15] study, in which 82% of visitors to mobile health clinics were married. However, our finding is higher than that of Aljasir & Alghamd-

^{17]}. the study, in which 54% were married. However, it should be noted that most participants in the latter study were males. This may explain the lower percentage of marriage in the Saudi study since males usually marry at a later age than females.

Regarding residence, most (87.4%) participants in this study were from rural areas. Indeed, the residence of clients is an important factor for the utilization of mobile clinic services. A study from Kuala Lumpur showed that distance and difficulty of transport affect the services provided in mobile clinics and limit the range of these services^{19]}.

In the present study, 65.2% of surveyed clients of mobile clinics were unemployed. This high rate of unemployment, compared with the national rate of unemployment in Egypt (10.8% in 2019), reflects the underprivileged status of people living in this area^{20]}. Likewise, the rate of unemployment in the Aljasir & Alghamdi^{17]} study was 72.7%, which is much higher than the national Saudi unemployment rate at that time (9.8%). In the present study, most (79.4%) of visits were repeated, while only 20.6% of clients visited the mobile clinic for the first time. This is similar to the Aljasir & Alghamdi^{17]} study, in which 93.2% of respondents had used the mobile clinic service in the past. The high percentage of repeated visits to mobile clinics may reflect adherence to treatment and commitment to follow-up. However, data from mobile clinics screening (e.g., mobile mammography) showed a tendency for low rates of adherence^{21]}. The most common reason for visiting mobile clinics in our study was service/check-up, while only 13.8% of participants sought treatment.

The most commonly visited clinics were family planning (53%), internal medicine (29.4%), dentistry (8.1%), obstetrics and gynecology (6.3%), pediatrics (2.6%), and surgery (2.5%). The family planning clinic included 3–5 healthcare

professionals, at least one of them was qualified for intrauterine device insertion. The high percentage of visits to family planning clinics denotes the primary focus of the "Mobile Clinics" project that has started in 1997 in Egypt to provide many services, including no-fee family planning/reproductive health services for areas lying 3 kilometers from the nearest health unit^{22]}. However, the focus of mobile clinics on family planning services may expose visitors to a higher risk of rumors and social stigma compared with static facilities. This may decrease the utilization of mobile clinics, particularly at conservative isolates^{23]}. The reasons to visit mobile clinics greatly vary among different studies, depending on the goal of mobile clinics and the range of provided services. Mobile clinics may focus on preventive as well as curative health services^{24]}. For example, of 724 mobile clinics in the USA, 47% reported that they provide prevention services exclusively, 41% reported to be primary care focused, and 28% reported providing dental care. Mammography, pediatric, mental health, asthma, maternal and infant health, disaster relief, vision, and other specialty services are also provided by mobile clinics^{16]}. In a study from Malawi, malaria and respiratory and gastrointestinal disease were the most common conditions, accounting for nearly 60% of total visits to mobile clinics^{14]}. In Limaye et al.^{18]} study, most clients received general medical care (90.3%), but some also received dental care (12.1%) and a few had surgical care (0.21% receiving cataract surgeries). In Peters et al^{13]}., the main provided services were antenatal care, child health, and immunization.

The high percentage (75.9%) of dissatisfaction with the radiology center in our study could be attributed to the space constraints. However, dissatisfaction with the radiology center may hinder the effective use of this important service,

particularly in conducting screening programs (e.g., mammography screening) in rural areas^[24]. Dissatisfaction with radiological services was also reported by another study. In a focus group discussion on women's perceptions of mobile versus fixed mammography in Santa Clara County (California, USA), clients experienced better communication at the mobile site (e.g., notification of long wait times, telephone call reminders). However, they were concerned about the quality of images and felt technologists were less meticulous at mobile sites than at fixed sites^[25]. The vast majority rated the services as excellent (75-88%) or good (21-25%), including clinical history and examination, eye examination, laboratory investigations, and ECG. However, some people referred to long waiting times and disorganized systems^[26]. In Aljasir & Alghamdi's^[17] study, the overall satisfaction of the mobile clinic users was very high; the structure of the services and the types of services provided were rated as satisfactory by 94.9% and 98.9%, respectively. This included the location (good 58%, acceptable 6.3%, unsatisfactory 35.8%); schedule 1/week (good 52.3%, acceptable 27.3%, unsatisfactory 20.5%); working hours (good 81.8%, acceptable 13.1%, unsatisfactory 5.1%); physicians (good 98.9%, acceptable 1.1%); and nurses (good 98.9%, acceptable 1.1%). However, 62.5% of users in this Saudi study viewed mobile services as of lower quality in comparison with services provided by static primary health care centers. Moreover, 90.9% of the users did not feel that they could depend on mobile clinics to meet all of their routine or emergency care needs^[17]. An Egyptian study assessed client satisfaction with the mobile geriatric clinic, which was designed to offer free health services to community-dwelling elderly aged 60 and above. Data from more than 200 respondents in 2015 showed consid-

erable satisfaction with service. All confirmed that they will recommend this service to their friends and acquaintances, and many asked for a repeat event to be able to follow up^[27]. In the year 2000, a mobile clinic in New York provided opportunities for accessing proper health care at the proper time for a vulnerable population with an emphasis on screening, health-related preventions, and linking primary care with trust between underprivileged patients and the health care system. The improvement in the health situation including immunization and follow-up on the effectiveness of treatment methods became part of the mission of these clinics and greatly improved the knowledge about the effects of social and economic factors on the health situation. In general, mobile clinics were successful and highly satisfactory in improving the health system and using novel methods for improving the health situation of society^[28]. In Limaye et al^[18]. In the study, respondents noted that the mobile ship clinic increased accessibility to services and broadened coverage. They appreciated the quality of care (82.5%) and medication provided (63.7%) but also requested a larger variety of medicines (42.0%). However, some expressed some frustration with the lack of communication with the program, which made accessing the clinic more difficult. In terms of service provision, nearly all participants wanted additional services (97.5%), particularly blood tests (72.7%), ultrasound services (70.2%), and X-rays (64.3%). They also requested surgeries (30.8%), contraceptives (13.5%), and small local pharmacies (7.5%).^[18] In Peters et al^[13]. study on mobile clinics in Nigeria, virtually all women (98.2%) indicated that the mobile clinic staff understood their problems. The vast majority of those interviewed also reported that the health worker was able to explain the nature of their problem, that their problems were

addressed during the visit, and that they were able to get all the prescribed drugs during their visit. Nearly all clients also reported that the mobile clinic taught them how to use or take the prescribed drugs; they were satisfied with the attitude shown by the health workers and satisfied with the skills demonstrated by the health workers in providing care. The large majority would not wish to receive services elsewhere^[13]. However, long waiting times were a concern for about 25% of users. There were also privacy concerns. About 50% of users considered that they were not afforded adequate privacy. Given the requirements for proper examination during antenatal care (especially palpation and use of a fetoscope) such lack of privacy may serve as a major disincentive for greater uptake of antenatal services^[13]. In Patro et al^[15]. In the study, aspects with the highest level of satisfaction (very satisfied) were achieved included timing of clinic (56%), relief of symptoms (52%), physical examination, and distance from home (43.9% each). The highest level of dissatisfaction (very dissatisfied) was obtained with the availability of investigations (14.6%), health information provision (8.5%), and physical examination (7.4%). In Al-Attar's^[29] study, only 17% preferred to go to a private doctor, believing that the quality of services at mobile clinics was low.

In the present study, male users of mobile clinics were significantly more satisfied with the registration process and health insurance office than females. This is consistent with previous studies that show more levels of satisfaction among male patients compared with females^[30].

Regarding the relationship between residence and satisfaction, rural residents were less satisfied than urban residents. This may be attributed to several factors, such as differences in sociodemographic and living conditions as well

as difficulty in travel from rural areas. Indeed, in Aljasir & Alghamdi^[17] study, 35.8% of participants were dissatisfied with the location of the mobile clinics.

CONCLUSION

In conclusion, the present study indicated a high satisfaction among users of mobile clinics in the El-Ballina district, except for some aspects. This indicates that the mobile clinic service represents an important model for the delivery of healthcare to communities in geographically and topographically inaccessible areas. However, further efforts are required to improve the quality of services provided by mobile clinics.

ETHICAL CONSIDERATIONS

The study was approved by the Ethical Research Committee of the Faculty of Medicine, Sohag University. Informed consent was obtained from each participant following a guarantee of data confidentiality for them.

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