

Original Article

Assessment of Premarital Services Provided by Family Health Facilities in Alexandria Governorate, Egypt

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Abstract

Background: Premarital health services aim at promoting the health of couples as well as prevention of health hazards for both future parents and their offspring, thereby improving population health by reducing morbidity and mortality related to genetic and hereditary disorders.

Objective(s): The study aimed to assess the resources and process of premarital care in Family Health Facilities (FHF) as well as assessment of the satisfaction of attendees regarding the received premarital services in Alexandria Governorate, Egypt.

Methods: A cross-sectional study was conducted in all FHF providing premarital services in Alexandria by using predesigned observational checklists to assess the availability of resources and the performance of all family physicians (FPs) providing premarital services. In addition, a total of 400 attendees for premarital services in the studied FHF were interviewed for assessing their satisfaction regarding the received services using a predesigned structured questionnaire.

Results: Around 90% of the needed non-human resources were available in the studied FHF. The monthly physician/ attendees ratio varied between the FHF, the lowest was 1:189 and the highest was 1:25. About one third (34.2%) of FPs were trained on premarital services in the studied FHF. All observed FPs showed a good level of performance. Most of the participating attendees (96%) were highly satisfied with the services they received.

Conclusion: In general, the provided premarital services in the studied FHF were satisfactory and most of the study participants were highly satisfied with the received services.

Keywords: Premarital care, reproductive health, family medicine, primary healthcare

Available on line at:

jhphalexu.journals.ckb.org

Print ISSN: 2357-0601

Online ISSN: 2357-061X

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Suggested Citations: Othman SM, Koura MR, Sabra AA, Moustafa NS. Assessment of Premarital Services Provided by Family Health Facilities in Alexandria Governorate, Egypt. JHIPH. 2025;55(1):9-17.

INTRODUCTION

Reproductive health is a state of complete physical, mental, and social well-being in all affairs regarding the reproductive system and its processes and functions.⁽¹⁾ Sexual and Reproductive health (SRH) is critical to fulfil universal health coverage and is involved in the Sustainable Development Goals (SDGs), that commit nations to offering universal access to SRH services by 2030 and also to integrating these services to national programs and strategies. Provision of SRH services to all communities and individuals without barriers is considered a good investment for governments as the current lack of access to SRH care puts many people at high risk of dangerous and expensive complications.⁽²⁾

Sexual and Reproductive health is an integrated component of primary health care (PHC) as it is critically important to individuals' wellbeing and

health across their life course. This integration should be achieved within national health benefit packages following a life course approach and ensuring principles of PHC.^(2,3)

Premarital services are main components of SRH services, to help to-be-married couples to prepare for marriage and conception by identifying and modifying health risk factors known to affect marriage and pregnancy outcomes through preventive interventions and management.⁽⁴⁾

Premarital services include premarital assessment, case management and referral if indicated. Premarital assessment includes personal, family and reproductive health history taking, laboratory investigations, general and systemic clinical examination. Health education, medical and genetic counseling are also components of premarital services that should be provided to future spouses.⁽⁵⁾

Premarital services are concerned with variable health problems as viral hepatitis, Human

Immunodeficiency Virus (HIV) and Sexually Transmitted Diseases (STDs),⁽⁵⁾ which are major public health problems worldwide.⁽⁶⁾ Moreover, the global health burden of inherited hemoglobin disorders like thalassemia, and sickle-cell disease is increasing.⁽⁷⁾ Premarital services can reduce the burden of hereditary diseases,^(8, 9) STDs,⁽¹⁰⁾ congenital disorders,⁽¹¹⁾ and high divorce rates.⁽¹²⁾

In the Middle East region, premarital screening and genetic counselling programs in Iraq, Turkey and Iran reported at least 65% reductions in the prevalence of thalassemia affected births.⁽⁹⁾ Moreover, the Saudi Arabia program of premarital services resulted in marked reduction in the number of at-risk marriages there, which may cause reduction in the genetic diseases burden over the coming years.⁽¹³⁾ The effectiveness of national premarital screening program in Saudi Arabia is evident by reduction of the percentage of at-risk couples who proceeded with marriage from about 90% by to 73% and reduction of percentage of identified risky couples from 2.14% to 1.13% over 4 years of establishment of premarital screening program.⁽¹⁴⁾

In Egypt, premarital examination has been compulsory by law since 2008. However, a new premarital examination presidential initiative has put the law into action since February 2023 and added new obligatory tests for the couple about to get married for early detection of many infectious and non-communicable disorders.⁽¹⁵⁾ Although premarital services are obligatory in Egypt, their implementation still has various barriers that need to be addressed.⁽¹⁶⁾

Assessment of the quality of premarital services through evaluating structure, process and outcome measurements may provide an indicator of the current situation and barriers to effective implementation of the services and also provide opportunities for improvement of the provided services.

The current study aimed to assess the quality of premarital services provided by Family Health Facilities (FHF) in Alexandria, Egypt according to Egyptian practice guidelines for family physicians by assessment of resources and process of premarital care, in addition to assessment of satisfaction of attendees with premarital services in FHF in Alexandria.

METHODS

During the period from 27th of February 2023 to 4th of July 2023, a cross-sectional study design was conducted in all eight family health facilities (FHF) providing premarital services in Alexandria governorate, targeting family physicians (FPs) working at FHF in Alexandria and attendees for premarital examination at the same FHF.

A total number of 27 physicians, which represent all physicians who provided premarital services during

the time of study conduction, were observed during five premarital care sessions for each of them with a total of 135 observed sessions.

The sample size of attendees for premarital examination was calculated using Epi info 7.2, 2018. Assuming that 50% of the population are satisfied regarding premarital services, with a 5% confidence limit, the minimum required sample at 95% confidence level was calculated to be 384. The sample was rounded to 400. The sample was proportionately allocated according to the attendance rate in each FHF.

Data collection methods and tools:

Data collection was done through the following:

I. Assessment of resources for premarital services in the FHF

An observational checklist was designed based on the Harmonized Health Facility Assessment Tool (HHFA),⁽¹⁷⁾ and MOHP Egypt practice guidelines for FPs,⁽⁵⁾ and was used for assessment of availability of human resources for premarital services in each FHF which included number of family physicians, nurses, lab technicians and health educators and their training on premarital services, as well as assessment of availability of non-human resources for premarital services in the studied FHF which included 48 items regarding waiting room, examination room, equipment for examination, health education materials, records and reports, laboratory and imaging equipment and materials, rubella vaccination and referral system.

Available human resources were presented as health provider to attendees ratio/ month, as well as percentage of trained health personnel.

All available non-human resources items were given a score of one, while unavailable items were given a score of zero. The total score ranged between 0 to 59 points and was categorized into three levels:

- Low level of availability (<50% of total score)
- Moderate level of availability (50% - <75% of total score)
- High level of availability ($\geq 75\%$ of total score)

II. Assessment of performance of FPs during provision of premarital services in the studied FHF:

An observational checklist was used to assess the practice of FPs while providing premarital services. It was designed based on the new Egyptian premarital examination initiative and included 28 items regarding the following:⁽¹⁸⁾

- i. Inquiring about identification data
- ii. History taking
- iii. General examination
- iv. Psychological assessment
- v. Laboratory investigations including blood group, RH factor, hemoglobin level, random blood sugar, Hb electrophoresis test, HBV, HCV, and HIV tests.

vi. Health education, medical counseling and referral if indicated.

For each performed item a score of one was given, while each item was given a score of zero if not performed. If an item was not applicable in some sessions, it was not included in the total score of those sessions. The total score was then calculated as a percentage.

The average score percentage of the five observed sessions for each physician was calculated and categorized into three levels:

- Good performance (score $\geq 75\%$)
- Fair performance (score $50\% - <75\%$)
- Poor performance (score $<50\%$)

III. Assessment of satisfaction of attendees for premarital examination regarding premarital services in the studied FHF's

A predesigned structured interviewing questionnaire was used to collect data from attendees for premarital examinations. The questionnaire was divided into two sections:

- A. Socio-demographic and related medical data such as; nationality, age, gender, residence, level of education, occupation, monthly income level, marital status, consanguinity with the other partner, history of chronic diseases and history of hereditary disorders.
- B. The Arabic version of the Patient Satisfaction Questionnaire Short Form (PSQ-18) was used, after appropriate modifications, to assess the level of satisfaction of attendees undergoing premarital examination with regard to the received services.⁽¹⁹⁻²¹⁾ A three-point Likert scale ranging from 1 to 3 was used to facilitate participants' responses and simplify statistical analysis. To ensure the reliability of the modified questionnaire, a pilot study was conducted on 15 participants (excluded from the final sample), and feedback was collected to confirm clarity, consistency, and relevance of the questions. Based on their responses, minor adjustments were made to wording and structure to enhance understanding and ensure the tool was consistently interpreted across participants.

The questionnaire used consisted of seven subscales covering different aspects of the received services: general satisfaction, technical quality, interpersonal manners, communication, financial aspects, time spent with doctor, accessibility and convenience. Each aspect included two statements except technical quality, accessibility and convenience which included four statements.

The average score for each satisfaction subscale was calculated. The total satisfaction score was calculated by adding the seven subscales' scores. The maximum score was 54 and was categorized into three levels of satisfaction:

- Low satisfaction level (score $<50\%$)
- Moderate satisfaction level (score $50\% - <75\%$)
- High satisfaction level (score $\geq 75\%$)

A pilot study was done on eight FPs and 40 attendees for premarital examination. Participants who took part in the pilot study were not included in the final analysis. Pilot testing showed that the questions were clear, and the language was easy to understand. Minimal linguistic changes were made. Moreover, the pilot study showed that data collection logistics could be successful in generation of a high participation rate.

Ethical considerations:

The researcher got the approval of the Ethics Committee of the High Institute of Public Health and the Ethics Committee of Ministry of Health and Population (IRB0000687) for conducting the research. Consent was taken from all study participants after explaining the purpose and benefits of the research. The researcher complied with the International Guidelines for Research Ethics. Anonymity and confidentiality were assured and maintained. There was no conflict of interest.

Statistical analysis:

Data was reviewed, coded, and statistically analyzed using computer package SPSS version 25. Kolmogorov-Smirnov was used to test for normality of quantitative data. Non-normally distributed data were described using the median and the interquartile range. Mann-Whitney and Kruskal-Wallis tests were used to compare the differences in satisfaction in relation to sociodemographic characteristics of the participants. A p value <0.05 was considered statistically significant.

RESULTS

Table 1 shows the availability of resources for premarital services. The waiting and examination rooms in all the studied FHF's were clean, had good ventilation, and good lighting. However, privacy in the premarital examination room was not available in 75% of the studied FHF's.

All equipment for premarital examination was available and working in all the studied FHF's except for examination bed that was not available in half of the studied FHF's. Tools for premarital health education were available in seven out of eight FHF's (87.5%). Moreover, resources for recording and reporting were available in all the studied FHF's.

All resources for obligatory laboratory tests in premarital assessment were available in all studied FHF's. On the other hand, resources for some non-obligatory investigations that may be needed for premarital assessment as complete blood count and

chest x-ray were available in 62.5% of the studied FHF's.

Regarding the availability of human resources for premarital services among the studied FHF's in Alexandria; the mean number of FPs was 9.13 ± 3.137 .

The monthly physician/ attendees ratio varied between the FHF's, the lowest ratio was 1:189 and the highest ratio was 1:25. Around one third (34.2%) of total FPs in the studied FHF's were trained regarding premarital services.

Table (1): Availability of human and non-human resources for premarital services in the studied family health facilities in Alexandria

Item	FHF (n = 8)				
	No.	%			
Waiting room					
Contains enough chairs for the clients	5	62.5			
Chairs are in good condition	7	87.5			
Cleanliness, good lightening and ventilation	8	100			
Examination room					
Privacy of the room for examination	2	25.0			
Cleanliness of the room and good lightening	8	100			
Quietness of the room	7	87.5			
Enough number of chairs	7	87.5			
Examination bed	4	50.0			
Equipment for examination*	8	100			
Health education materials	7	87.5			
Resources for recording and reporting	8	100			
Rubella vaccination resources	8	100			
Referral resources	8	100			
Laboratory and imaging equipment and materials					
Blood grouping, RH factor, Hb level, HB electrophoresis, Fasting blood glucose, Postprandial blood glucose,	8	100			
Random blood sugar, HIV, HBV, HCV tests, urine and stool analysis, pelvic ultrasound					
Complete blood picture, chest X-ray	3	37.5			
VDRL test for syphilis, semen analysis	0	0			
Total level of availability of non-human resources	100% high level (≥75%)				
Median score (Q1 – Q3)	53 (51 – 53)				
Range (Min – Max)	48 – 54				
Human resources	Mean (SD)	Lowest - Highest ratio**	Total No.	Trained*** No.	Trained *** %
Family physicians	9.13 (±3.137)	(1:189) - (1:25)	73	25	34.2
Nurses	22.5 (±5.529)	(1:53) - (1:11)	180	40	22.2
Laboratory technicians	6.38 (±2.134)	(1:221) - (1:43)	51	10	19.6
Health educators	3.25 (±1.909)	(1:359) - (1:60)	26	13	50.0

*Adult weighing scale, height scale, sphygmomanometer, stethoscope, thermometer, examination light, time monitor (each scored separately)

**Ratio of health providers to attendees for premarital examination per month

***Trained on premarital services

Regarding obligatory components of premarital services, table 2 shows that obligatory laboratory investigations were performed in all observed sessions. Height and weight measurement were done in most of the observed sessions (92.6%), while blood pressure measurement was done in 51.9% of sessions. Health education and medical counselling were performed in most of the observed sessions (96.3% & 91.9%) respectively. On the other hand, psychological assessment was not performed in any of them. Regarding the level of performance of FPs providing premarital care in FHF's in Alexandria, all observed PHC physicians (100%) had good level of performance.

The vast majority of participating attendees for premarital examination in the studied FHF's in Alexandria were Egyptians (98.5%) and living in urban areas (94%). Almost half of them were females (49.2%). Nearly 70.3% of participants aged between 18 and 35 years.

Regarding educational level, less than half (45.8%) of participants were university graduate or higher. Less than third of participants were unemployed (31.5%). Less than half of participants (47.5%) said that their monthly income wasn't covering all their expenditures. Only 12% of participants had consanguinity with the other partner.

Table 3 shows levels of the total satisfaction of the participating attendees for premarital examination with received premarital services in the studied FHF's in Alexandria. Most of the participants (96%) were highly satisfied with the premarital services provided.

The subdomain that showed the highest satisfaction was the technical quality with 99.2% of participants having a high satisfaction level. On the other hand, the subdomain that had the least satisfaction was the financial aspects with only 41.5% of the participants showing a high satisfaction level.

Table (2): Obligatory components of premarital services performed during observed premarital care sessions and the level of performance of family physicians in family health facilities in Alexandria

Item	Observed sessions (n=135)	
	No.	%
Asking about identification data	135	100
History taking	135	100
General examination		
Height and weight measurement	125	92.6
Blood pressure measurement	70	51.9
Psychological assessment		
Psychological assessment questionnaire	0	0
Laboratory investigations		
Blood group	135	100
RH factor	135	100
Hemoglobin level	135	100
Random blood sugar	135	100
HBV test	135	100
HCV test	135	100
HIV test	135	100
Hb electrophoresis test	135	100
Health education and medical counseling		
Health education	130	96.3
Medical counseling	124	91.9
Referral if indicated	Not applicable	
Level of performance	PHC physicians (n=27)	
	No.	%
Good performance ($\geq 75\%$)	27	100
Fair performance ($50\% - <75\%$)	0	0
Poor performance ($<50\%$)	0	0
Score range (Min – Max)	84 – 96 (out of 100)	
Median score (Q2)	96	
IQR (Q1 – Q3)	4 (92 – 96)	

Table (3): Distribution of attendees for premarital examination according to the level of satisfaction with premarital services in the studied family health facilities in Alexandria (n = 400)

Satisfaction subdomains	Satisfaction level					
	Low		Moderate		High	
	No.	%	No.	%	No.	%
General satisfaction	6	1.5	43	10.7	351	87.8
Technical quality	0	0	43	0.8	397	99.2
Interpersonal manner	0	0	6	1.5	394	98.5
Communication	0	0	9	2.2	391	97.8
Financial aspects	92	23.0	142	35.5	166	41.5
Time spent with doctor	7	1.7	55	13.8	388	84.5
Accessibility and convenience	7	1.7	47	11.8	346	86.5
Total satisfaction	0	0	16	4.0	384	96.0
Min - Max	33-54 (out of 54)					
Median	50					
IQR (Q1- Q3)	47 - 52					

There was a statistically significant difference in total satisfaction scores of attendees for premarital examination in relation to their educational level ($P = 0.005$), occupation and monthly income level (P

<0.001). Participants with university education or higher, professional occupation and enough monthly income with savings had higher satisfaction levels (table 4).

Table (4): Distribution of participating attendees for premarital examination in the studied family health facilities in Alexandria according to their socio-demographic and medical characteristics in relation to their total satisfaction scores

Characteristics of attendees (n = 400)					Test of significance	
		No.	%	Mean Rank	Test value	Sig.
Nationality	Egyptian	394	98.5	199.56	811 ^a	0.183
	Non-Egyptian	6	1.5	262.33		
Age in years	18 -	281	70.3	200.54	0.995 ^b	0.608
	35 -	105	26.2	204.24		
	≥ 55	14	3.5	171.68		
	Median age	29				
Gender	Male	203	50.8	190.26	17916.5 ^a	0.070
	Female	197	49.2	211.05		
Residence	Urban	376	94.0	202.21	3870.5 ^a	0.239
	Rural	24	6.0	173.77		
Educational Level	Lower than secondary education	93	23.2	170.81	14.425 ^b	0.001*
	Secondary education	124	31.0	189.52		
	University graduate or higher	183	45.8	223.03		
Occupation	Professional	78	19.5	257.40	24.267 ^b	< 0.001*
	Non-professional	196	49.0	183.35		
	Unemployed	126	31.5	191.95		
	Not enough & borrow	59	16.2	111.09		
Monthly income level	Not enough	125	31.3	143.10	122.899 ^b	< 0.001*
	Enough	195	47.3	255.26		
	Enough with saving	21	5.2	284.90		
Marital Status	Single	277	69.2	201.75	16690.5 ^a	0.745
	Prior Marriage	123	30.8	197.70		
Consanguinity with the partner	Yes	48	12.0	186.16	7759.5 ^a	0.356
	No	352	88.0	202.46		
Having any chronic disease	Yes	16	4.0	178.03	2712.5 ^a	0.424
	No	384	96.0	201.44		
Having any hereditary disorder	Yes	2	0.5	135.50	268 ^a	0.422
	No	398	99.5	200.83		
Family history of any hereditary disorder	Yes	2	0.5	141.25	279.5 ^a	0.464
	No	398	99.5	200.80		

* P -value < 0.05

^a Mann-Whitney Test was used

^b Kruskal-Wallis Test was used

DISCUSSION

Premarital services are crucial public health measures for healthy marriage, preventing infections and genetic disorders, and reducing financial burdens.⁽²²⁾ Assessment of health service quality involves structure, process, and outcome measures. To improve service quality, data analysis and identification of root causes are necessary.⁽²³⁾

The present study found that all included FHF in Alexandria had around 90% of the necessary non-human resources for premarital services. In comparison, a 2015 study conducted in Alexandria, Egypt found that 75% of examination rooms were partially sufficient and 25% insufficient for premarital examination and counseling.⁽²⁴⁾ The present study found that all FHFs provided tests for HIV, Hepatitis B, and Hepatitis C, as well as HB electrophoresis for inherited blood disorders like Thalassemia and SCD, while none of which were provided in 2015 due to lack of resources as reported by the same mentioned study.⁽²⁴⁾ This is probably due to the availability of required non-human resources after launching the new Presidential premarital examination initiative since February 2023 which imposed strict implementation and supervision of premarital services after supplying FHFs providing premarital services with the required resources.

Assessment of availability of human resources revealed that the monthly physician/attende ratio varied between studied FHFs, with some having high attendance rates despite having fewer health personnel. The disproportionate number of health personnel to the number of clients and inadequate human resource management can lead to increased workload and decreased contact time with clients which may affect the quality of the provided health services.⁽²⁵⁾

In the current study, observation of practices of health personnel showed that all observed physicians had a good level of performance regarding provision of obligatory premarital examination items. This totally differs from the 91.7% non-optimal performance observed in a previous study in Alexandria, Egypt in 2015 where none of the laboratory investigations related to STDs or genetic disorders were performed in premarital examination.⁽²⁷⁾ This difference is probably contributed to the current implementation of Presidential premarital examination initiative which provided FHFs with the required resources for premarital screening in addition to clear protocol for obligatory components of premarital services.

On the other hand, the current study found that psychological assessments of couples were not performed during all observed sessions, possibly due to lack of training, high attendance rates, limited

contact time, and privacy issues. The public unpreparedness to accept mental health assessments may also limit health providers' ability to perform screenings effectively. A study in Saudi Arabia in 2023 found that over half of participants considered premarital screening for mental disorders a violation of privacy, while only half agreed to receive premarital psychological assessments due to stigma and lack of mental health literacy.⁽²⁶⁾

Regarding assessment of outcome measures, the satisfaction of the clients is an important indicator of the quality of the provided healthcare.⁽²⁷⁾ Most of the participating couples (96%) were highly satisfied with the premarital services received, while only 4% of them were moderately satisfied.

This exceeds what has been reported in a previous study published in Egypt in 2023 which found that only 44% of the participants were satisfied with the provided premarital services.⁽²⁸⁾ Another study conducted in Egypt in 2022 showed that 69% of the participants were satisfied with premarital service.⁽²⁹⁾

This difference between previous studies and the current study results regarding the satisfaction rate of the clients was probably due to the modification in the implementation and supervision of premarital services after initiation of the new Presidential premarital examination initiative in February 2023.

The least satisfaction in the current study was regarding the financial aspects with only 41.5% of the participants were highly satisfied. This may be due to the economic status of the study participants, as nearly half of them said that their monthly income was not enough. This was inconsistent with the results of a previous study in Alexandria in 2015 which reported that more than 93% of the participants stated that they did not have to pay more than they could afford to get premarital services, and they were feeling confident regarding getting premarital services without being set back financially.⁽²⁴⁾ This difference from the current study can be due to the increase in the fees of premarital services since February 2023 from around 18 to 300 Egyptian pounds per person due to provision of more expensive laboratory investigations which was not previously provided.

The current study revealed a significant difference in satisfaction levels for premarital examination attendees based on their educational level and occupation. Participants with university education or higher and those with professional occupations also had higher satisfaction levels. This aligns with a previous study in Iraq in 2024, which found that highly educated and employed attendees had the highest satisfaction levels.⁽³⁰⁾ Additionally, participants with sufficient monthly income with savings had higher satisfaction levels. The study also found higher satisfaction among females and younger participants, but without statistical significance. A

systematic review study conducted in 2022 to study determinants of clients' satisfaction with health care services found that age, education level, communication, and waiting time are the main factors influencing client satisfaction with health care services.⁽³¹⁾

CONCLUSION AND RECOMMENDATIONS

The study revealed that FHF provide satisfactory premarital services, with high availability of non-human resources, good performance of physicians and high satisfaction of attendees regarding the received premarital services.

Recommendations include providing training programs for FPs on psychological assessment and conducting further research on the effectiveness and long-term outcomes of modified premarital services.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

FUNDING

No funding sources

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