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**ABSTRACT** This study compared dentists' perceptions of provided services in Family Health (FH) and Mother and Child Health (MCH) clinics. A questionnaire was distributed to 120 dentists in 7 FH and 4 MCH clinics in Alexandria, Egypt in 2012. The questionnaire assessed personal and professional background, perceptions of primary health care (PHC) role, types of services provided, patient recall and referral systems and perception of service quality. The response rate was 100%. More FH dentists perceived their role to include providing care for children and pregnant women. Restorations and scaling were provided by 90% of all dentists. More FH dentists reported providing simple extractions, paediatric extractions and multi-rooted endodontic treatment (P = 0.03, 0.001 and 0.001). In FH clinics, where the performance-based incentive system was implemented, a greater number of patients was served and there was a shift in the type of services provided although dentists had a less positive perception of quality aspects. Thus, there is a need for the establishment of a mission and clear guidelines for the FH

clinics to guide service provision.

## Perception des dentistes dans les établissements de santé de la famille et de santé maternelle et infantile vis-à-vis des services de soins de santé primaires à Alexandrie (Égypte)

**RÉSUMÉ** La présente étude avait pour objectif de comparer la perception des dentistes travaillant dans des établissements de santé de la famille et de santé maternelle et infantile vis-à-vis des services offerts. Un questionnaire a été distribué à 120 dentistes de sept cliniques de santé de la famille et de quatre dispensaires de santé maternelle et infantile à Alexandrie (Égypte) en 2012. Ledit questionnaire évaluait l'expérience personnelle et professionnelle, les perceptions du rôle des soins de santé primaires, les types de services offerts, les systèmes de rappel des patients et d'orientation-recours, ainsi que la perception de la qualité des services. Le taux de réponse a été de 100 %. Davantage de dentistes des établissements de santé de la famille pensaient que leur rôle incluait la prestation de soins pour les enfants et les femmes enceintes. Les restaurations dentaires et le détartrage étaient offerts par 90 % de tous les dentistes. Un plus grand nombre de dentistes en santé de la famille ont déclaré procéder à de simples extractions, à des extractions chez l'enfant et à un traitement endodontique des dents pluriradiculées (p = 0,03, 0,001 et 0,001). Dans les cliniques de santé de la famille, où un système d'incitation reposant sur les performances était mis en place, un plus grand nombre de patients étaient traités, bien que les dentistes aient une moins bonne perception de la qualité. Il est donc nécessaire d'organiser une mission, ainsi que de mettre au point des directives claires pour les cliniques de santé de la famille, afin d'orienter la prestation de services.

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## Introduction

An essential element of primary health care (PHC) declared in the Alma Ata conference is an overall focus on prevention rather than curative service (1). Since dentistry is essentially a primary care discipline, oral health was later integrated into PHC models. The majority of patient care in dentistry occurs in community settings and involves simple procedures which are

provided by general practitioners whose aim is to have a long-term relationship with patients (2). Primary oral health care includes preventive services—health education and promotion (3)—and basic treatment such as examination, bitewing radiographs, scaling and polishing, simple (1–3 surfaces) fillings and emergency relief of pain and sepsis (4).

In the past, Egypt provided PHC through various systems that sometimes had inadequate referral and integration of several programmes resulting in a fragmented system (5). A gap existed between the services PHC programmes intended to provide and the resources available to support them. This imbalance resulted in low salaries, lack of supplies and substandard facilities, which caused dissatisfaction among both clients and providers. Although the number of PHC units in Egypt (2.2 units per 10 000 population) was among the highest in Arab countries (5), it had a small impact on health outcomes, especially among disadvantaged groups because it lacked an intersectoral approach (6).

One vertical programme operated through the mother and child health (MCH) clinics and aimed at providing comprehensive integrated preventive, curative and rehabilitative services to mothers during and after pregnancy as well as to their newborns. In 1997, the Ministry of Health started a reform of the health system in order to provide all Egyptians with access to better quality primary and preventive services through the "Family Health Model", which combined public funds and user co-payments according to the ability to pay. In this model, integrated services were provided under the same roof for the entire family and the family physician/dentist cared for all members of the family regardless of age, gender or type of problem (7). The main features of this model were that it 1) required less time and transportation, 2) had a performance-based incentive system potentially increasing provider accountability for quality standards and reform goals and 3) had an improved referral system. Most MCH clinics, the main providers of PHC in the dental sector, were converted into family health (FH) clinics although some of them remained MCH clinics (8).

Sheiham and Williams in their report about reducing oral health inequalities in the Middle East (9) commented that a capitation reimbursement system would offer greater efficiency, equity and patient participation and help in continuity of care as well as patient and dentist satisfaction. Experts investigating suitable methods to finance oral health services in the Middle East recommended that oral programmes be incorporated into existing primary care programmes to reduce costs (10).

Studies were conducted to evaluate this performance-based incentive FH care system in the sectors of reproductive health and child care (11), diabetes management (12) and laboratory quality (13), but not in the dental sector. The present study therefore aimed to evaluate and

compare the perception of dentists working in MCH and FH clinics in Alexandria, Egypt regarding the PHC services they provided. This evaluation will help health care policy planners to understand the impact of different financing mechanisms on health professionals and their understanding of the services they provide so that better care can be ensured.

## Methods

### Study design, setting and sample

A cross-sectional study was conducted among dentists working in FH and 4 MCH clinics in Alexandria, Egypt during October and November, 2012.

Approvals for the study were obtained from the Central Directorate for Research and Health Development, Ministry of Health (IRB00006877), Egypt and the Ethics of Dental Research Committee in the Faculty of Dentistry, Alexandria University.

Alexandria includes 8 administrative Ministry of Health districts with 60 primary dental care clinics (56 FH and 4 MCH clinics). Districts where there were no MCH clinics were excluded leaving 3 districts included in the study. Clinics were selected in the ratio 1:2 (MCH:FH). Thus, the study covered clinics in the 3 districts of Montazah, Middle and Amreya: 2 MCH clinics and all 3 available FH clinics in the Middle District and 1 MCH clinic and 2 FH clinics (selected randomly) in each of the 2 other districts. All dentists in these clinics were invited to participate in the study (n = 120). Returning the filled questionnaire was considered an implicit consent to participate in the study.

### Data collection

Data were collected using a self-administered questionnaire developed based on previous studies (14,15) and pilot-tested on a sample of 15 dentists, who were not included in the study, to ensure clarity of questions. The questionnaire used close-ended questions where the respondent was asked to select the correct/appropriate answer from among several options or answer on a yes/no basis. The first section in the questionnaire asked about personal and professional background (sex, age, qualification, specialty and number of patients served in the previous year). The second section assessed respondents' perception of their PHC role where they were asked to select from a list of 6 roles (care of children, care of pregnant women, follow-up of schoolchildren, care of all family members, provision of low cost/free services and health education). The third section included 15 procedures that respondents were asked to indicate if they provided or not. In addition, they were asked if they recalled patients, referred them to other facilities, types of services these referred patients received, reasons for referral and percentage of patients referred. The last section asked respondents to indicate on a yes/no basis if they were satisfied with the availability, affordability, suitability and timeliness of services

and whether they were satisfied with the services they provided and thought their patients were satisfied or not.

### Statistical analysis

Data were analysed using SPSS, version 17.0. Comparison between FH and MCH dentists was done using the chi-squared, Fisher exact or Mann–Whitney U tests. The significance level was set at 5%. Bar charts were used for graphical presentation.

## Results

The response rate was 100% (all 120 dentists responded; 52 and 68 from FH and MCH clinics respectively). A greater proportion of MCH than FH dentists were women (89.7% versus 69.2% respectively, P = 0.01). Most of the dentists in both types of clinic held bachelor of dentistry degrees (80.8%) and were

More FH than MCH dentists perceived the role of PHC to include follow up of schoolchildren (*P* = 0.05), care of pregnant women (*P* = 0.05), care of children (*P* = 0.04), follow up of all family members (*P* = 0.03) and provision of free/low cost services (*P* = 0.03) (Figure 1). Less than 40% of dentists in both types of clinic thought PHC included providing health education (*P* = 0.09).

Figure 2 shows the services FH and MCH dentists reported they provided. Restorations and scaling were reported by > 90% of the dentists in both types of clinic. Simple extraction and health education were reported by just over 90% of FH dentists versus just over 70% of MCH dentists (*P* = 0.03 and 0.09 respectively). Significantly more FH dentists than MCH dentists reported providing paediatric extractions (*P* = 0.001), multi-root endodontic treatments (*P* = 0.001) and surgical extractions (

*P*
= 0.01). Almost half the FH dentists reported providing prosthetic services—complete (
*P*
= 0.001) or partial (
*P*
= 0.0001) dentures—compared with no MCH dentist reporting providing these services.

Significantly more MCH than FH dentists reported that they recalled patients (86.8% versus 61.5%, *P* = 0.004) (Table 1) . Almost all dentists reported referring patients when needed. More MCH than FH dentists reported referring patients to receive paediatric dental services (92.7% versus 42.3%, *P* P P P P = 0.005) or dental clinics were not enough (58.8% versus 17.7%,
P
P = 0.25).

Significantly more MCH than FH dentists reported that the services were available for all (89.7% versus 11.5%, P P P = 0.004) (Table 2) . MCH dentists reported that patients waited a shorter time to receive services compared to FH dentists (mean = 0.6 versus 2.7 days,
P
= 0.001). More MCH than FH dentists perceived patients to be satisfied with services (73.5% versus 42.3%,
P
= 0.001) while more FH than MCH dentists reported they were personally satisfied with the quality of the service (50.0% versus 27.9%,
P
= 0.01).

## Discussion

Few studies have focused on the assessment of PHC delivery in dentistry and dentists' perception of the services provided (16). Our study compared 2 types of PHC system (FH and MCH) and the perception of dentists working within them. The perception of FH dentists of their role was more aligned with PHC concepts and they were more satisfied with the services they provided. They served and referred more patients and provided services responding to the needs of a more varied population. MCH dentists, on the other hand, recalled patients more frequently, and were more oriented to the quality of services and how this impacted patient satisfaction. One of the factors that may explain these differences is the newly introduced system in FH clinics that links performance to financial incentives. However, our study results are mixed and do not unequivocally show that the FH system had better perceived outcomes on quality or continuity of care than the MCH system.

Most of the dentists in the 2 types of clinic were women. This reflects the higher proportion of women who graduate from dental schools in Egypt in addition to the fact that male dentists are more likely to leave their jobs in the Ministry of Health because of inadequate salaries (17). A higher proportion of FH dentists were male possibly because these clinics are in remote areas where women may be reluctant to work.

Health education, a core PHC service, was cited by both FH and MCH dentists as the service least provided. Caring for all family members was less cited as a role than caring for mothers and children which may mean adult males and older clients are considered less of a priority for FH dentists, although they are supposed to provide care for the entire family. A gap existed among FH dentists between their perception and the reality of the situation: they considered that their role was to provide free/low cost services whereas only 7.7% thought their services were affordable. These contradictions need to be resolved by developing a mission for FH clinics that reflects the objectives of the system and the purpose for which it was developed.

Almost all FH and MCH dentists reported providing restorative services and scaling, the core services of dental PHC. If the number of services actually provided concurs with the dentists reporting providing these services, then there has been a shift from earlier reports of Ministry of Health services in Egypt where extractions have been the main service provided since the 1980s (18). The greater per cent of restorative services may be explained by the population served by the clinics and the possibility that they are in urban areas. It may reflect a generalized time trend and a response to patient profile rather than a strategic shift in philosophy of the health care system. There is also the possibility that this change may be related to the performance-based incentive system. It is documented that different financing systems are associated with changes in how dentists and patients respond to health problems (19). A study conducted in the United States of America showed that reimbursing providers increased the number of minimally invasive/preventive services offered to children (20). More FH dentists reported providing extractions (simple and surgical), possibly because they are the least expensive among the procedures FH clinics offer. The greater percentage of dentists reporting paediatric extractions in FH clinics reflects the absence of paediatric dentists. Workforce qualification and availability have a direct effect on oral health (21,22). Endodontic treatment was reported to be provided by more FH than MCH dentists with wider gap in multi-root teeth. These procedures are usually expensive for the lower socioeconomic level of MCH patients. In addition, MCH patients are either young children who would be referred elsewhere for endodontic treatment or pregnant women who may not wish to have the procedure for fear it may affect their pregnancy.

More MCH dentists reported recalling their patients, possibly reflecting the monthly recall routine

of pregnant mothers done in MCH clinics. The most frequently cited reason for referring patients was inadequate instruments/equipment; fewer dentists reported limited experience as the reason for referral. This agrees with a study of National Health Service dentists who reported referring difficult cases (23) and another study of New Zealand general practitioners who referred complex cases to specialists (24). A significantly higher percentage of MCH dentists had referred paediatric patients although there are paediatric dentists in these clinics and although most dentists perceived the follow-up of and care of children as among the roles of dental PHC. This may be explained by the fact that a greater proportion of MCH patients are children compared to FH patients. It may be difficult therefore for the few paediatric dentists to cover all their needs. FH dentists had referred a significantly higher number of patients in the previous month. In a PHC context, referral is a main service since FH providers act as gate keepers to the health care system (25). There is a need to establish clear guidelines for the FH clinics and how much their role is to act as gate keepers and provide PHC services with referral of more complex cases or if they should cover the treatment needs of all family members regardless of the complexity and cost of care. The latter approach seems unrealistic and would go against the rationale for establishing governmental tertiary care facilities. Similarly, Fayle called for a clear delineation of the duties of the United Kingdom National Health Service general dental practices and salaried dental services to establish an integrated network of services to meet patients' needs (26). Experts proposing solutions to reduce oral health inequalities in the Middle East have recommended the establishment of national systems to integrate and organize efforts by the different elements of the dental care services (9).

MCH dentists had a more positive perception of the availability, appropriateness, timeliness and patient satisfaction with the services they provided. However, more FH dentists reported their own satisfaction with provided services. MCH dentists may have a more patient-centered perspective of quality focusing on patient satisfaction as an outcome whereas FH dentists are more interested in the quantitative indicators of quality related to the number of patients they managed directly or referred. A study investigating changes after health sector reform in Suez, Egypt reported increased provider satisfaction and productivity as demonstrated by the rise of physician encounters from 3 to 16 per day (27). Another study used a case–control design to investigate the effect of a performance-based incentive system in FH clinics on providers' behaviour regarding the delivery of reproductive and child care services in Egypt (11). The investigators reported significant improvement in the quality of family planning, antenatal care and child care services in the clinics where the system was implemented compared to others.

Our study has some limitations. We relied on dentists' perception to compare the 2 systems which might introduce dentists' biases. Future studies are needed to complement the data of dentists' perceptions with unbiased data based on records. In addition, information from the patients' perspective would add greater depth to the comparison of the 2 models. More research is needed to follow the progress of FH towards providing dental PHC according to the Egyptian accreditation standards (28).

## Conclusion

Based on our findings, dentists' perception of the quality services provided and patient satisfaction were more positive among MCH dentists. FH dentists' perception of their role was more aligned with PHC concepts although this did not necessarily translate to the actual services they provide fulfilling the same role. Based on the participants' perceptions, the FH system may be suffering from high costs which may prevent patients from utilizing services. In addition, there is a need to develop a mission for FH clinics that is aligned with the purpose for which they were established, taking into consideration the available resources.

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