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Ph.D. Thesis

Primary Health Care in Gaza Strip- Palestine

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Primary Health Care in Gaza Strip-Palestine

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DEDICATION

This study is dedicated to my country, my father, my mother, my brother, my sisters and my wife forever constant endless generous support.

Tayser Abu Mourad

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Greek Abstract

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Αναπληρωτής Καθηγητής Αναστάσιος Φιλαλήθης, Αναπληρωτής Καθηγητής Χρήστος Λιονής και Dr. Suzanne Shashaa

Διδακτορική Διατριβή

ΠΕΡΙΛΗΨΗ

Υπόβαθρο

Οι Παλαιστινιακές Αρχές το 1994 ανέλαβαν την υπευθυνότητα εκπόνησης ενός σχεδίου για φροντίδα υγείας στην Λωρίδα της Γάζας και την Δυτική Όχθη και συνέταξαν το πρώτο εθνικό σχέδιο υγείας. Το 1999 το δεύτερο Εθνικό Σχέδιο Υγείας θεώρησε την πρωτοβάθμια φροντίδα υγείας ως την ραχοκοκαλιά του Παλαιστινιακού συστήματος υγείας. Επιπλέον, το Υπουργείο Υγείας εφάρμοσε μια πεντάχρονη στρατηγική στο τομέα υγείας, για να βελτιώσει το Παλαιστινιακό Σύστημα Διαχείρισης Υγείας και Πληροφοριών (ΠΣΔΥΠ) με απώτερο σκοπό την υποστήριξη της λειτουργικότητας των υπηρεσιών υγείας. Εκτός από το Υπουργείο Υγείας, η Υπηρεσία Αρωγής και Έργων των Ηνωμένων Εθνών (UNRWA) παρέχει υπηρεσίες υγείας χωρίς χρέωση στους Παλαιστίνιους πρόσφυγες.

Ακόμα, μελετήθηκαν στην Λωρίδα της Γάζας, οι ατομικοί παράγοντες που καθορίζουν τη χρήση της πρωτοβάθμιας φροντίδας υγείας και τη ικανοποίηση των ασθενών από αυτήν. Η αστάθεια των οικονομικών και πολιτικών συνθηκών παίζει ένα σημαντικό ρόλο στην σχηματοποίηση της χρήσης των πρωτοβάθμιων υπηρεσιών υγείας και της ποιότητας των υπηρεσιών.

Στόχοι

1. Η ανάλυση του Παλαιστινιακού Εθνικού Στρατηγικού Σχεδίου Υγείας 1999-2003 και η εκτίμηση της έκτασης της επίτευξης των αντικειμενικοί του στόχων.
2. Η εκτίμηση κατά πόσο η στρατηγική του ΠΣΔΥΠ κατά την περίοδο 1999-2003 επιτεύχθηκε και η περιγραφή του παρόντος χρησιμοποιούμενου μοντέλου που θεσπίστηκε για να υποστηρίξει την λειτουργικότητα των υπηρεσιών πρωτοβάθμιας φροντίδας.
3. Η χρήση του συμπεριφορικού μοντέλου του Andersen για τη συχνότητα χρήσης της πρωτοβάθμιας φροντίδας υγείας, με σκοπό την πρόβλεψη των ατομικών χαρακτηριστικών που προσμετρούνται κατά τη χρήση.
4. Η μετάφραση και στάθμιση στα Αραβικά ενός Ευρωπαϊκού οργάνου (EUROPEP) και η εκτίμηση της ικανοποίησης των ασθενών από τις υπηρεσίες των πρωτοβάθμιων κέντρων υγείας.
5. Η εκτίμηση του βαθμού ικανοποίησης των ασθενών από την πρωτοβάθμια φροντίδα υγείας που παρέχεται από το ιατρικό προσωπικό και να ερευνήσει σε ποια σημεία υπάρχει μη ικανοποίηση.

ΜΕΘΟΔΟΙ

Για την ανάλυση της διδακτορικής διατριβής χρησιμοποιήθηκαν πολλές προσεγγίσεις.

1. Πραγματοποιήθηκε περιγραφική μελέτη, χρησιμοποιώντας ανάλυση περιεχομένου με συστηματική ανασκόπηση των δεδομένων που συλλέχθηκαν από το σχέδιο για την πρωτοβάθμια φροντίδα υγείας και άλλες σχετικές μελέτες και δημοσιεύσεις. Τα παραπάνω χρησιμοποιήθηκαν για να εκτιμηθεί ο βαθμός της επίτευξης των εθνικών στρατηγικών στόχων της πρωτοβάθμια φροντίδας υγείας και του ΠΣΔΥΠ.
2. Πραγματοποιήθηκε ανάλυση SWOT (ανάλυση για τις δυνατότητες, αδυναμίες, ευκαιρίες και απειλές), η οποία είναι μία αποτελεσματική μέθοδος για την αναγνώριση ενδεχομένων κινδύνων. Ο στόχος ήταν να αναγνωρισθούν αρνητικά και θετικά σημεία στο κυβερνητικό σχέδιο ΠΣΔΥΠ.
3. Για την εκτίμηση των ατομικών παραγόντων της χρήσης καθώς και την ικανοποίηση από τη πρωτοβάθμια φροντίδα υγείας, χρησιμοποιήθηκε ένα δείγμα 956 ασθενών που συλλέχτηκαν μέσω τυχαίας διαστρωματοποιημένης δειγματοληψίας. Οι ασθενείς που επιλέχθηκαν και εξετάσθηκαν με ερωτηματολόγιο ανήκαν σε 15 κέντρα υγείας από τα οποία τα 5 ανήκουν στο Υπουργείο Υγείας και τα 10 στην UNRWA.
4. Χρησιμοποιήθηκε δομημένο ερωτηματολόγιο για τη συλλογή πληροφοριών που σχετίζεται με τους κοινωνικο-οικονομικούς παράγοντες, δημογραφικούς παράγοντες, ποιότητας ζωής, επισκέψεων στο κέντρο υγείας το τελευταίο εξάμηνο, σημαντικά γεγονότα (έκθεση σε οικονομικά και ψυχολογικά γεγονότα), συνθήκες διαμονής των ασθενών των τελευταίο χρόνο. Το πολυδιάστατο εργαλείο Health Locus of Control –HLC- χρησιμοποιήθηκε για να εξετάσει την επίδραση της αίσθησης κατά πόσο οι άνθρωποι αισθάνονται ότι έχουν επίδραση σε ότι τους συμβαίνει.
5. Χρησιμοποιήθηκε το ερωτηματολόγιο EUROPEP με στόχο να εκτιμήσει την ικανοποίηση των ασθενών από το ιατρικό προσωπικό και από το παρεχόμενο σύστημα υγείας, καθώς επίσης μετρήθηκαν τα ψυχομετρικά του χαρακτηριστικά με στόχο την εγκυρότητα του στην Αραβική γλώσσα.

ΑΠΟΤΕΛΕΣΜΑΤΑ

Η ανάλυση των δεδομένων που συνδέονται με την στρατηγική στο χώρο της υγείας έδειξε ότι οι καρδιοπάθειες είναι η κυρίαρχη αιτία θανάτου στην Παλαιστίνη. Η κάλυψη εμβολιασμού σε τέτανο, διφθερίτιδα, ιλαρά και πολυομυελίτιδα έχει επιτευχθεί σε ικανοποιητικό βαθμό. Υπάρχουν συγκεκριμένες ανησυχίες σχετικά με την ποσότητα παρεχόμενου νερού και των συνθηκών υγιεινής , ενώ τα ψυχολογικά προβλήματα δείχνουν επιδείνωση κατά το 2003. Το κλινικό πληροφοριακό σύστημα και το σύστημα επιδημιολογικής επιτήρησης έχουν χρησιμοποιηθεί, ενώ περαιτέρω υποσυστήματα έχουν σχεδιασθεί, όπως το κέντρο καταγραφής πρωτοβάθμιας

υγείας, το εργαστήριο επαγγελματικής και δημόσιας υγείας. Επίσης σχεδιάστηκε μία ιστοσελίδα για να παρέχει πληροφορίες πρωτοβάθμιας φροντίδας και μελέτες που μπορούν να είναι προσβάσιμες από παντού (www.moh.gov.ps). Η μελέτη ανέδειξε ότι άτομα μεγάλης ηλικίας, παντρεμένα και χωρισμένα/χήροι, άτομα που ζουν σε συνθήκες φτώχιας, άνεργοι, υψηλού εισοδήματος, χαμηλού επιπέδου υγείας και νυν καπνιστές είναι οι κύριοι παράγοντες που συνδέονται σημαντικά με υψηλή χρήση της πρωτοβάθμιας φροντίδας υγείας. Τα αποτελέσματα δείχνουν ότι η Αραβική έκδοση του EUROPEP είναι ένα έγκυρο όργανο το οποίο μπορεί να χρησιμοποιηθεί για την εκτίμηση της ικανοποίησης της ασθενών από τη πρωτοβάθμια φροντίδα υγείας στην Λωρίδα της Γάζας. Τα αποτελέσματα της ικανοποίησης των ασθενών έδειξαν ότι την χαμηλότερη ανταπόκριση είχαν οι ερωτήσεις που αφορούσαν την «επικοινωνία με την κλινική μέσω τηλεφώνου», τη «δυνατότητα να μιλήσεις με το γιατρό στο τηλέφωνο», το «χρόνο αναμονής» και τη «βοήθεια για την αντιμετώπιση συναισθηματικών προβλημάτων. Η σύγκριση μεταξύ των διαστάσεων «κλινική συμπεριφορά» και «οργάνωσης της υγείας» έδειξαν ότι η κλινική συμπεριφορά εμφανίζει υψηλότερες τιμές από την οργάνωση της υγείας.

Συζήτηση και συμπεράσματα. Οι προσπάθειες για την προώθηση της υγείας καθώς και οι πτυχές της περιβαλλοντικής υγείας χρειάζονται ακόμα τις άμεσες κυβερνητικές, μη κυβερνητικές και διατομεακές επεμβάσεις. Το Υπουργείο υγείας έχει επιτύχει σε μεγάλο βαθμό στη στρατηγική HMIS, όσον αφορά την πρωτοβάθμια φροντίδα υγείας, κάτι που επιτεύχθηκε με την εφαρμογή νέων βάσεων δεδομένων και της καθιέρωσης ενός ενιαία και κεντρικού HMIS. Εκπληρώνοντας την εφαρμογή των του κλινικού συστήματος πληροφοριών σε εθνικό επίπεδο ταυτόχρονα με την ενσωμάτωση και αναβάθμιση του πρωτοβάθμιου συστήματος πληροφοριών, θα βελτιωθούν οι πρωτοβάθμιες υπηρεσίες υγείας όπως λειτουργικότητα, αποδοτικότητα, αποτελεσματικότητα και απόδοση. Τα ευρήματα μας έδειξαν μια θετική συσχέτιση μεταξύ ηλικίας, υψηλού οικονομικού επιπέδου, χαμηλού επιπέδου συνθηκών διαβίωσης και χαμηλού τρόπου υγιεινής ζωής με υψηλή χρήσης της πρωτοβάθμιας φροντίδας υγείας, κάτι που είναι σε συμφωνία με την ήδη δημοσιευμένη βιβλιογραφία. Προτείνουμε ένα αποτελεσματικό σύστημα διαχείρισης της φροντίδας υγείας, βασισμένο σε θέματα ισότητας, και προώθησης υγιεινών προτύπων διαβίωσης επιπρόσθετα με παρεμβάσεις για να εξουδετερωθούν η αστάθεια της πολιτικής και οικονομικής κατάστασης μπορούν να βελτιστοποιήσουν τη χρήση της πρωτοβάθμιας φροντίδας υγείας. Οι Παλαιστίνιοι ασθενείς εκφράζουν δυσαρέσκεια με την πρωτοβάθμια φροντίδα υγείας όπως προτείνεται από το ιατρικό προσωπικό, ειδικά με τα θέματα οργάνωσης. Ως εκ τούτου, οι πολιτικοί και οι διαχειριστές οφείλουν να θέσουν το θέμα της βελτίωσης της ποιότητας υγείας σε προτεραιότητα σε μελλοντικό σχέδιο. Τέλος, αυτή η μελέτη μπορεί να χρησιμοποιηθεί ως ένας οδηγός για τους πολιτικούς και τους διαχειριστές για ένα προοπτικό σχέδιο υγείας στην Παλαιστίνη. Πρέπει επίσης να κατευθύνουν τις προσπάθειες τους και να κατευθύνουν πόρους για την εκπλήρωση των στόχων του προηγούμενου Εθνικού Σχεδίου Υγείας. Το παραπάνω μπορεί να επιτευχθεί κάτω από την ομπρέλα ενός σταθερού πολιτικού και οικονομικού συστήματος, κάτι που απαιτεί τοπικές και διεθνείς δράσεις και επείγουσες αυθεντικές παρεμβάσεις.

English Abstract

Background
The Palestinian Health Authority in 1994 took over the responsibility for health care in Gaza Strip and West Bank and formulated the first national health plan. In 1999 the second National Health Plan considered primary health care (PHC) as the backbone of the Palestinian health care system. Furthermore, the Ministry of Health (MOH) adopted the five-year strategy to improve the Palestinian Health Management Information System (HMIS) for supporting the functioning of the health services. Besides the MOH, the United Nations Relief and Works Agency (UNRWA) provides health services free of charge to the Palestinian refugees. The individual determinants of PHC utilization and the patients' satisfaction with the PHC have never been investigated in Gaza Strip. The instability of the economic and political conditions plays a significant role in shaping the usage of primary care services and the quality of the outcome.

Aims
1. To analyze the Palestinian National Strategic Health Plan 1999-2003 and to determine to what extent the PHC objectives have been achieved.
2. To evaluate to what extent the Palestinian HMIS strategy (1999-2003) has been achieved and to describe the currently employed model that was instituted to support the functioning of PHC services and to identify the areas of positive aspects and negative risks that influenced the governmental HMIS.
3. To use Andersen's behavioural model of health care, for predicting the individual characteristics that account for the use of PHC services.
4. To translate and validate into Arabic a European instrument (EUROPEP) for evaluating the patients' satisfaction with PHC services.
5. To evaluate the extent to which patients are satisfied with PHC services provided by physicians and to explore the areas of dissatisfaction.

Methods
A multi-method approach was used in this thesis:
1. A descriptive study using content analysis with a retrospective review of data gathered from the PHC strategy and other related reports and publications were used to evaluate the extent of achievement of the strategic national objectives of PHC and HMIS in primary health care sector.
2. A SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) which is an effective method for prospective risk identification was used to identify areas of positive aspects and negative risk that influenced the governmental HMIS.
3- For evaluating the individual determinants of PHC utilization and the patients' satisfaction with the PHC, a representative sample of 956 patients were randomly selected using a stratified multi-stage sampling. The patients were interviewed in 15 PHC centers, 5 of which belong to the MOH and 10 belong to the UNRWA.
4- A structured questionnaire was used to collect the information related to socio-economic, demographic, self rated health, health lifestyle, frequent visits of PHC within a six-month recall period, life events (exposure to financial and psychological events) and the living conditions assessed by patients within a one-year period. The multidimensional health locus of control (HLC) instrument was used to examine the effect of a cognitive style that is reflected in the degree to which people feel that they have an influence over what happens to them.

5- EUROPEP, an instrument used to evaluate the patients' satisfaction with the physicians and with the health care provided, was subjected to psychometric measurements in order to validate it in Arabic. This instrument was then used to evaluate patients' level of satisfaction.

Results

Analysis of data related to health strategy showed that heart diseases were the leading cause of death in Palestine. Acceptable vaccination coverage has been mostly achieved, especially for tetanus, diphtheria, measles and polio. There are certain concerns regarding water supply and the sanitary conditions and mental health was getting worse by the year of 2003. The clinical information system and epidemiological surveillance system have been implemented. Further subsystems, such as PHC registry, occupational health and public health laboratory have been designed. A website was designed to disseminate PHC information and reports and it is accessible worldwide online (www.moh.gov.ps). The SWOT analysis reveals a viable Palestinian HMIS. The study revealed that high age, married and divorced/widowed status, poor living conditions, not being in the labour force, high level of income, poor rated health status and current smoking habit were the main factors associated significantly with high use of PHC. The results show that the EUROPEP is a valid instrument in Arabic and can be used for evaluating the patients' satisfaction with the PHC in Gaza Strip. The mean percentage of positive satisfaction with medical services was poor (41.8%). The poorest performance items were getting through to the clinic on the phone, being able to speak to the physician on the telephone, time spent in waiting rooms and helping the patient to deal with emotional problems. The comparison between clinical behaviour dimension and organization of care showed that clinical behaviour was evaluated higher than organization of care.

Discussion and Conclusions

Health promotion efforts and environmental health aspects still need immediate governmental, non-governmental and inter-sectorial interventions. The MOH has mostly achieved HMIS strategy as regards the PHC, through implementation of new databases and establishing a unified/centralized HMIS. Widening of the implementation of the clinical information system will improve health policy and management in Palestine and improve the primary health services' functioning, effectiveness, efficiency and performance. Efforts to mitigate the threats of the Palestinian HMIS are needed. Our findings revealed an association between older age, high economic level, low level of living conditions and low level of healthy lifestyle with high use of PHC, and are in line with published literature. We suggest that an effective health management, based on addressing equity issues and promoting healthy lifestyles in addition to interventions to overcome the instability of political and economic situation may optimize the utilization of PHC. Palestinian patients expressed overall dissatisfaction with services provided by primary care physicians especially organization of care. Therefore, policy makers and administrators have to put the issue of quality improvement as a priority of their prospective health planning agenda. Finally, this study could be used as guidance for the policy makers and administrators for prospective health planning in Palestine. They can direct their efforts and allocate resources toward the unachievable objectives of the previous National Health Plan. This could be done under the umbrella of stable political and economic conditions, which the latter requiring local and international efforts and urgent genuine interventions.

Arabic Abstract

الاستراتيجية الفلسطينية للرعاية الصحية الأولية وجودة الخدمات المقدمة فى محافظات قطاع غزة- فلسطين

مقدمـــة

تسلمت السلطة الوطنية الفلسطينية القطاع الصحى فى عام 1994م فى كل من الضفة الغربية وقطاع غزة، وقامت باعداد الخطة الصحية الاولى. وفى عام 1999م اعتبرت الخطة الصحية الاستراتيجية الثانية ان الرعاية الصحية الاولية هى العمود الفقرى لنظام الرعاية الصحية فى فلسطين، بالاضافة الى ذلك فقد تبنت وزارة الصحة الفلسطينية الخطة الخمسية لتحسين ادارة نظام المعلومات الصحية وذلك من اجل دعم اداء الخدمات الصحية وتحسين جودة وكفائتها. ومن الجدير بالذكر انه بجانب وزارة الصحة الفلسطينية تقوم وكالة غوث وتشغيل اللاجئين بتقديم الخدمات الصحية مجانا للاجئين الفلسطينيين.

ان الظروف التى يعيشها الشعب الفلسطينى من الاحتلال والحصار الاقتصادى لها الاثر السلبى على القطاع الصحى، وكذلك لها الاثر السلبى على مدى تحقيق الاهداف الاستراتيجية الوطنية للخطة الصحية، كما وان لحالة عدم الاستقرار السياسى والاقتصادى تاثيرا خطيرا على صحة المواطنين وبالطبع على مستوى ترددهم الى المراكز الصحية اوالمستشفيات. كما وان لهذه الظروف الاثر السيئ على جودة خدمات الرعاية الصحية المقدمة. ولقد جاءت هذه الدراسة لتلقى الضوء على انجازات الخطة الوطنية وخصوصا فيما يتعلق بالرعاية الصحية الاولية وادارة نظام المعلومات الصحية، كذلك سعت هذه الدراسة الى اكتشاف العوامل اوالظروف المؤدية للتردد المتزايد من قبل المرضى على عيادات الرعاية الصحية الاولية، ومستوى رضاهم عن جودة الخدمات المقدمة من قبل الطبيب العام . ولقد تم بحث كل ذلك فى سياق الظروف الصعبة التى يعيشها الفلسطينيون فى قطاع غزة.

الاهـــداف

تهدف الدراسة الحالية الى:

1- تحليل محتوى الخطة الصحية الفلسطينية الخمسية التى تبنتها وزارة الصحة عام 1999م، وكذلك تقييم الى اى مدى تحققت اهدافها الاستراتيجية فيما يتعلق بالرعاية الصحية الاولية.

2- تقييم الى اى مدى تحققت اهداف الخطة الصحية فيما يتعلق بادارة نظام المعلومات الصحية، وعرض نموذج لنظام المعلومات الصحية المطبق حاليا فى الرعاية الصحية الاولية، وتقييم مواضع القوة ومواطن الضعف لنظام المعلومات الصحية فى فلسطين.

3- استخدام نموذج اندرسون (Anderson's Model)، لتحديد العوامل المؤثرة على مستوى تردد المرضى المتزايد على عيادات الرعاية الصحية الاولية فى قطاع غزة.

4- تقييم مستوى رضى المرضى المترددين على عيادات الرعاية الاولية فيما يتعلق بجودة الخدمات المقدمة لا سيما تلك المقدمة من قبل الطبيب العام.

منهجية الدراســـة

تبنت الدراسة منهجية متعددة الطرق لتحقيق اهداف الدراسة تمثلت بالاتى :

1- المنهج الوصفى التحليلى من خلال تقييم محتوى الخطة الصحية الفلسطينية ومراجعة (قراءة تحليلية وتقييمية) للبيانات والمعلومات المتعلقة بالرعاية الصحية الاولية فى فلسطين. أستخدمت هذه المنهجية المركبة لتقييم ال اى

مدى تحققت الاهداف الاستراتيجية للخطة الصحية الفلسطينية التى تبنتها وزارة الصحة عام 1999م فيما يتعلق بالرعاية الصحية الاولية.

2- استخدام تحليل سوات (SWOT Analysis) والذى يهدف الى اكتشاف مواضع القوة، ومواطن الضعف، الفرص، والاخطار التى يتعرض لها نظام المعلومات الصحية فى فلسطين.

3- لتقييم العوامل المؤثرة على مستوى التردد المتزايد على عيادات الرعاية الصحية الاولية، وكذلك مستوى رضى المرضى عن الخدمات المقدمة من قبل الطبيب العام، تم تحديد عينة الدراسة (1067مريضا) باستخدام الطرق الرياضية الملائمة، بينما تم تحليل بيانات 956 مريضا، لمطابقتهم لشروط الدراسة من حيث العمر (اكبر من 18 عام)، والمقدرة على الادلاء بالمعلومات. تم اختيار طريقة العينة متعددة الطبقات لتشمل كافة محافظات قطاع غزة ممثلة حسب التوزيع النسبى الديمغرافى للسكان والمكانى للعيادات. وتم اختيار المرضى بشكل عشوائى من 10 عيادات تعود للحكومة و5 عيادات تعود لوكالة غوث وتشغيل اللاجئين .

4- تم جمع البيانات المتعلقة بالمعلومات الاساسية، الظروف الاجتماعية والاقتصادية والديمغرافية والصفات الشخصية والانماط الحياتية للمرضى من خلال استبانة اعدت خصيصا لذلك. بينما تم استخدام مقياس التقييم الذاتى للصحة، استبانة التحكم الذاتى واستبانة مدى رضى المرضى عن الخدمات الصحية للرعاية الاولية وذلك بعدما تم ترجمتهما الى العربية بالطرق القياسية العالمية وبعدما تم اختبار مدى ملائمتهما للتطبيق فى المجتمع الفلسطينى.

النتائـــج

اظهرات النتائج ان امراض القلب هى المسبب الرأيسى للوفيات فى فلسطين. وبينت الدراسة انه تم الى حد كبير تغطية التطعيمات لا سيما ضد التيتانس ، الدفتيريا، الحصبة وشلل الاطفال. واظهرت الدراسة ان من اهم مشاكل صحة البيئة فى فلسطين هى تلك المتعلقة بجودة مياه الشرب وادارة المياه العادمة، اضافة الى المشاكل الاجتماعية والنفسية.

فيما يتعلق بنظام المعلومات، فقد طبقت وزارة الصحة برنامج نظام المعلومات العيادى المحوسب، وهو من البرامج الهامة التي عمدت وزارة الصحة على تنفيذه من خلال مشروع تطوير النظام الصحي وربطه مع نظام التأمين الصحي، والعلاج بالخارج، وسجل السكان (المواليد والوفيات)، حيث تم تطبيق هذا النظام في 4 عيادات من المستوى الرابع والتي تقدم كافة خدمات الرعاية الصحية الأولية للمواطنين في كل من الضفة الغربية وقطاع غزة. بينت الدراسة ان نظام التقصى الوبائى هو من الانظمة الفعالة فى النظام الصحى الفلسطينى. كما بينت ان مركز المعلومات الصحية الفلسطينى قام بتطوير نظام معلومات مختبر الصحة العامة من خلال اخراج بيانات تستخدم فى حساب مؤشرات دقيقة لصحة البيئة فى فلسطين. كما وبينت الدراسة ايضا انه تم تطوير نظام الصحة المهنية المحوسب والذى يخدم دائرة الطب المهني في وزارة الصحة من خلال حفظ البيانات المتعلقة بالطب المهنى من اجل الحصول على التقارير بسهولة وبفاعلية، وعمل الاحصائيات المناسبة التي تهم قطاع الصحة المهنية فى فلسطين. وبينت النتائج انه تم بناء برنامج الرعاية الأولية بهدف معالجة كافة البيانات الواردة من عيادات الرعاية الأولية في قطاع غزة. كما وقامت وزارة الصحة ببناء الموقع الاكترونى للوزارة، وهذا الموقع يقوم بنشر كافة التقارير والاخبار الصحية وذات العلاقة. أظهرت نتائج تحليل مواضع القوة

والضعف (SWOT Analysis) ان نظام المعلومات الصحية الفلسطينى هو نظام حيوى وان التغلب على المعوقات سيؤدى الى المحافظة على استمرارية تطوير هذا النظام.

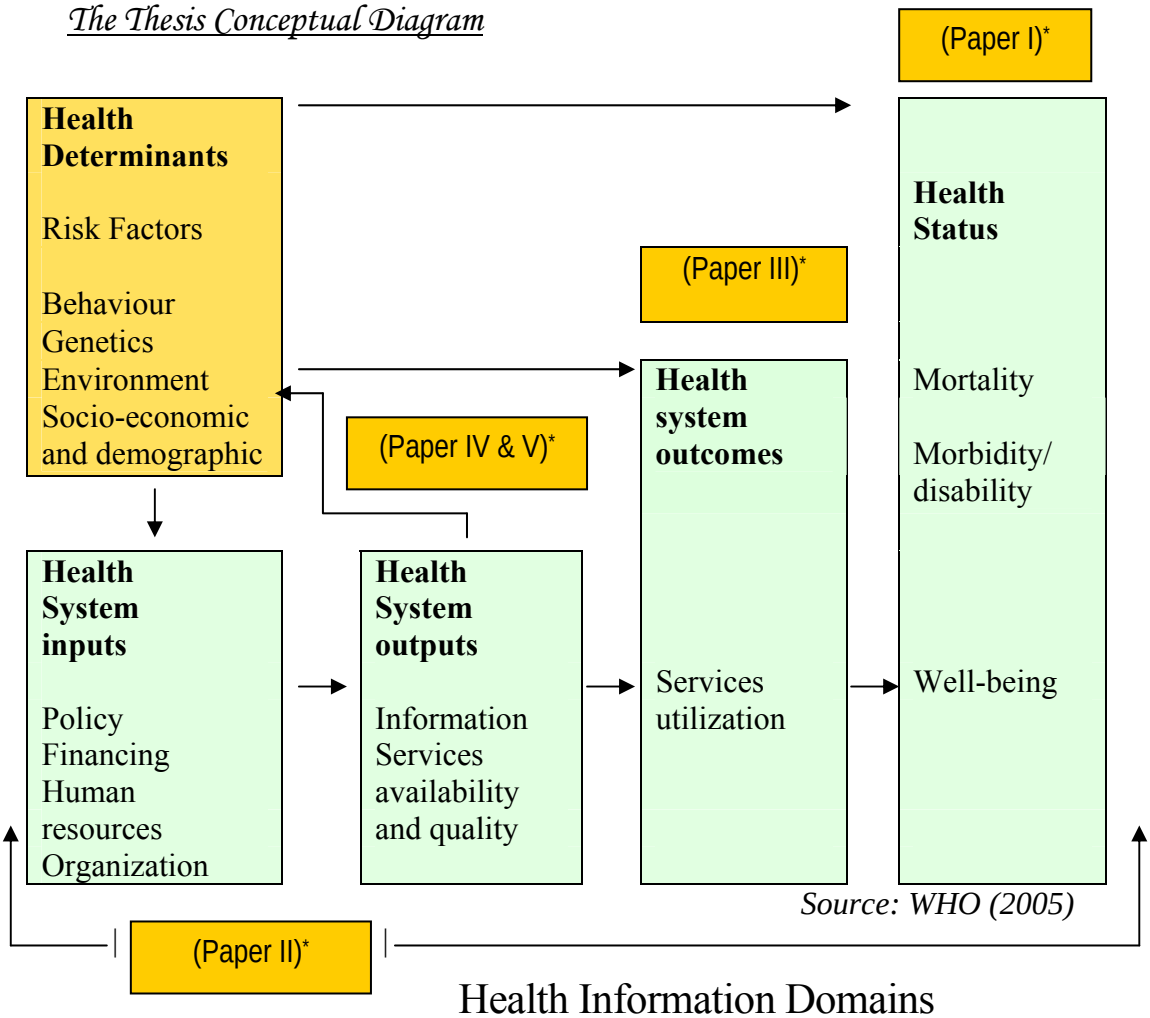
أظهرت الدراسة ان الاشخاص الاكثر ترددا على عيادات الرعاية الصحية الاولية فى محافظات قطاع غزة هم من ذوى الاعمار العالية والمتزوجون والارامل والمطلقون واللذين يعيشون ظروف حياتية صعبة والذين هم خارج القوى العاملة، وذوى الدخل المرتفع، والذين يقيمون صحتهم بغير جيدة، والممارسين الحاليين لعادة التدخين، وكانت هذه العلاقة الارتباطية ذات دلالة احصائية.

بينت الدراسة ان اليوروبيب EUROPEP بعد ترجمته الى العربية بالطرق القياسية العالمية، هو اداة فعالة لقياس مستوى رضى المرضى عن الخدمات المقدمة من الطبيب العام فى قطاع غزة، وان نتائج تقييم الرضى اظهرت ان المرضى المترددين على كل من عيادات الرعاية الاولية الحكومية وتلك التابعة لوكالة الغوث هم غير راضين عن جودة هذه الخدمات وخصوصا فيما يتعلق بالوصول للعيادات عبر الهاتف واوقات الانتظار قبل الدخول للمريض، وقدرة الطبيب لتشخيص الامراض النفسية. كما كان مستوى الرضى للسلوك الطبى المهنى للطبيب اعلى من التنظيم الطبى للخدمات المقدمة. وكان هذا التفاوت فى التقييم بين السلوك الطبى والتنظيم للخدمات الطبية المقدمة ذو دلالة احصائية.

الاستنتاجـــات والتوصيـــات

ان التعزيز والتثقيف الصحى ومشاكل صحة البيئة من القضايا الملحة والتى تحتاج الى جهود حكومية وغير حكومية لدعمها. لقد حققت وزارة الصحة الى حد كبير معظم الاهداف الاستراتيجية لنظام المعلومات الصحية الفلسطينى وذلك من خلال بناء قواعد بيانات وتوحيد نظم المعلومات الصحية فى مركز المعلومات الصحية الفلسطينى، وان توسيع العمل بنظام العيادة المحوسب ليشمل كافة العيادات سوف يكون له تاثير ايجابيا فى تحسين السياسة والادارة الصحية، وسوف يساهم فى تحسين اداء وفاعلية وكفاءة الرعاية الصحية فى فلسطين. اظهرت النتائج ارتباط بين العمر المرتفع، ومستوى الدخل العالى، ومستوى المعيشى المنخفض، ومستوى النمط الحياتى الغير صحى مع مستوى التردد المتزايد على الرعاية الصحية الاولية، مما يوجب توجيه ادارة الصحة نحو معالجة قضية العدل الصحى فى توزيع الموارد، وكذلك تشجيع التعزيز والتقيف الصحى. ان معالجة الوضع السياسى والاقتصادى المتدهور فى فلسطين لسوف ينعكس ايجابا على تحقيق الخطط الصحية لاهدافها الاستراتيجية وسيسهم فى تنظيم وتقنين التردد على الرعاية الصحية الاولية. وحيث ان المرضى عبروا عن عدم رضاهم عن الخدمات المقدمة فى الرعاية الصحية الاولية وخصوصا تلك المرتبطة بتنظيم هذه الخدمات، لهذا فان صناع القرار يجب ان يولوا الاهمية لتحسين جودة الخدمات المقدمة فى اى تخطيط استراتيجى لوزارة الصحة. واخيرا فان هذه الدراسة يمكن ان تستخدم كدليل لصناع القرار فى تخطيط استراتيجى سليم حيث يمكن ان يوجهوا الجهود والموارد والامكانات نحو االاهداف الاستراتيجية الصحية التى لم تتحقق بعد ويمكن ان يتم ذلك كله تحت مظلة الاستقرار السياسى والاقتصادى والذى يتطلب بلا شك جهودا محلية واقليمية وعالمية من اجل تحقيقه.

The Thesis Conceptual Diagram



Source: WHO (2005)

Health Information Domains

* For more details about the papers see the next page

Primary Health Care in Gaza Strip-Palestine

List of Original Publications (Papers)

This thesis is based on the following papers, referred to in the text by their Roman numerals.

I. Tayser Abu Mourad, Samir Radi, Suzanne Shashaa, Christos Lionis, Anastas Philalithis. Palestinian primary health care in light of the national strategic health plan 1999-2003. *Public Health.* In Press 2007.

II. Tayser Abu Mourad, Mohammed A. Affifi, Suzanne Shashaa, Dimitris Kounalakis, Christos Lionis, Anastas Philalithis. Health information systems in primary health care: the Palestinian model. Submitted to *Health Informatics Journal* on June 28, 2007.

III. Tayser Abu Mourad, Athanasios Alegakis, Suzanne Shashaa, Antonis Kuotis, Christos Lionis, Anastas Philalithis. Individual determinants of primary health care utilization in Gaza Strip-Palestine. Submitted to *Journal of Epidemiology and Community Health* on May 11, 2007.

IV. Tayser Abu Mourad, Suzanne Shashaa, Athanasios Alegakis, Christos Lionis Anastas, Philalithis. Translating and validating an instrument for measuring patients' satisfaction with primary care physicians in Palestine: The case of EUROPEP. Submitted to *European Journal of General Practice* on March 25, 2007.

V. Tayser Abu Mourad, Suzanne Shashaa, Adelais Markaki, Alegakis Athanasios, Christos Lionis, Anastas Philalithis. An evaluation of patients' opinions of primary care physicians: the use of EUROPEP in Gaza Strip-Palestine. Submitted to *Journal of Medical System* on June 1, 2007.

Part I

Introduction

A health care system cannot be understood without understanding the context in which it operates. Especially a health care system does not operate in a vacuum. It is influenced by the political, socio-economic, and cultural context within which it is enacting (1). One of the world's most arduous conflicts is going on in the Occupied Palestinian Territories. This conflict is the factor underlying the complex context of this area and influencing all aspects of people's lives. The direct effect of the conflict on health and the health care system is manifest (2,3,4,5,6,7,8,9,10). Thousands of deaths, injuries, disabilities, and mental health disorders are emerging. Operating the health care system has been directly influenced by the conflict. Diminished health care delivery and health programmes, jeopardized accessibility to health services are due to the closure and separation policies. However, not all these are unique to the Palestinian case. The effects of violent political conflicts have been experienced in many countries, for example in Uganda, Lebanon, Cambodia, Tigray-Eritrea, Bosnia, and many others (11). In the Occupied Palestinian Territories, as in other context, the structure, function and capacity of the health system has been shaped largely by the country's complex political history. Since the signing of the Oslo Peace Accords and the establishment of the Palestinian National Authority (PNA) in 1994, reform activities have been taking place in the health sector with the involvement of several international aid and United Nations Agencies as well as local and international non-governmental organizations (NGOs) (12).

Four main types of providers offer health services to the Palestinians: The MOH, the UNRWA, the NGOs and the private–for-profit sector. The health care system is structured in PHC centers, specialized clinics and other health care facilities (13). Structured PHC was introduced in Palestine in 1994 with the aim of adopting the eight components of the Alma-Ata model (14). Those components included immunization against major infectious diseases, maternal and child health**,** appropriate treatment of common diseases and injuries, adequate supply of safe water and adequate sanitation, education concerning prevailing health problems and methods prevention and control of local endemic diseases and provision of essential drugs. In 1994, the national health plan emphasized making PHC available and accessible for all people and encouraging the community to promote, achieve, and maintain optimum health for all residents through the provision of PHC services (15). For improving the health status of Palestinian people, in 1999 the MOH adopted a comprehensive strategy that focused on PHC and HMIS (16). The effectiveness of this strategy in respect to PHC and HMIS as well as the impact of the current situation on health care utilization and quality of the services has not been evaluated until now. This study was designed in order to initiate a scientific dialogue of these issues.

Overall Aims of the Thesis

The overall aims of the thesis were to:

1. Analyze the Palestinian National Strategic Health Plan 1999-2003 and to determine to what extent the PHC objectives have been achieved.
2. Evaluate to what extent the Palestinian HMIS strategy (1999-2003) has been achieved and to describe the currently employed model that was instituted to support the functioning of PHC services and to identify the areas of positive aspects and negative risks that influenced the governmental HMIS.
3. Use Andersen's behavioural model of health care, for predicting the individual characteristics that account for the use of PHC services.
4. Translate and validate into Arabic a European instrument (EUROPEP) for evaluating the patients' satisfaction with PHC services.
5. Evaluate the extent to which patients are satisfied with PHC services provided by physicians and to explore the areas of dissatisfaction.

Research Hypotheses

***H*(1)** The health status indicators of 2003 have not been improved when compared with the indicators of year 1999.

***H*(2)** HMIS which adopted by MOH strategic plan in 1999 has been applied especially in PHC setting.

***H*(3)** PHC utilization is shaped by objective characteristics of the patients such as social, economic, demographic and lifestyle, and subjective characteristics such as life events, living conditions, HLC, self rated health and satisfaction of the PHC care.

***H*(4)** European EUROPEP instrument for patients' satisfaction can translated, validated and used in Arab countries.

***H*(5)** The quality of PHC provided by physician is of satisfactory to the patients attending MOH and UNRWA clinics.

Contextual Background

1. Geopolitical context

The Palestinian political system is an evolving democratic system. It is based upon a multi-party system and has an elected legislative council. However, it is difficult to talk about a clear Palestinian political system because Palestinians lack sovereignty (17). The PNA is still not a 'state'. It assumes its responsibilities under conditions of particular adversity and complexity for a governing institution (18). Now it is directly responsible for the civil affairs of the Palestinians living in the West Bank and Gaza Strip, other than those living in East Jerusalem.

In accordance with the Palestinian Israeli agreements, the 'interim period' should have ended by May 1999, and the withdrawal from and redeployment in the West Bank and Gaza Strip should have occurred in several steps and have been completed by July 1997. Israel remains in exclusive control of 61% of the West Bank despite its commitment to redeploy its forces from 88% of the West Bank by July 1997 (19). In April 2002, The Israeli government

established a steering committee to implement the separation wall plan, which called for its immediate construction in the northern West Bank and the Jerusalem area. At present, the wall is being built in the Qalqiliya, Tulkarem, Jenin, Jerusalem, and Bethlehem Districts (five of the nine West Bank districts), and up to 6 km east of the Green Line, inside the West Bank. The Separation Wall establishment lies on 16.6% of the Palestinian land in West Bank and East Jerusalem depriving 17,000 Palestinians in West Bank and 220,000 Palestinians in East Jerusalem from their health, human and civil rights, also isolates 71 health clinics (20). On October 26, 2004, the Israeli Knesset adopted Prime Minister Ariel Sharon's disengagement plan, By 22 August of year 2005, in the course of the plan, all the 21 illegal Israeli Settlements were evacuated from the Gaza Strip, and the Israeli military redeployed to the borders of the Gaza Strip. Since then, all borders (air, sea and land) of the Gaza Strip have been closed, with only minor, temporary lifting. Neither people, nor goods can enter or exit the Gaza Strip. As a key element of the Israeli "Disengagement Plan", Palestinians are not in control of the land and not of access to and from the Gaza Strip. This closure prevents entry into Israel or passage through Israel in order to reach the West Bank and East Jerusalem or from Gaza to Egypt and these circumstances; hundreds of patients from Gaza Strip have been left without treatment (21).

In Fact, the West Bank and Gaza, differing in their natural landscape, population distribution and legal systems, are inhabited by about 3.7 million individuals, of whom 63% reside in the West Bank (20). The latter has a low population density (406 inhabitants per km^2) with about one-fifth of the population consisting of refugees, whereas Gaza is 'one of the most densely populated areas of the world', with 3,664 inhabitants per km^2, of whom 65% are refugees. Approximately 46.3% of the Palestinian population is below 15 years of age, population natural increase rate is 3.4% (22). It is noteworthy that the geographical divisions aggravated by the political conditions of the past several years have produced two separate de facto government health systems, one for Gaza and the other for the West Bank. This point seems to be missed by donors and current reform policies. The situation on the ground has led to the near impossibility of unifying and standardizing the two geographically isolated health sectors, creating redundancy in positions and bureaucracy and widening the already existing gap between the two regions. All these developments are antithetical to the goal of efficient health sector reform (12).

2. The historical context

Historical events during the past century have had a profound influence on the characteristics of the health system emerging today. Years of colonization and military occupation have shaped the capacity of the health system and defined its main actors. The evolution of the Palestinian health care system passed in four eras: the British Mandate period (1920–48), the Jordanian and Egyptian rule (1948–67), Israeli Administration (1967–94) and the subsequently PNA since 1994. Following World War I, with Palestine under the British Mandate, health services were provided by the Government Department of Health under the British Civil Administration between 920–48. While some government hospitals and health clinics were provided for the Arab population, British

colonial policy aimed to limit investments in the social services in the region, and thus the rural areas of the country, where most of the poor Palestinian population resided, had very limited access to medical services. Many city dwellers were able to utilize the Christian Mission hospitals and the government hospitals in the major Palestinian cities. The 1948 Arab–Israeli War brought about the creation of the State of Israel and the displacement of the Palestinian population, whereby approximately 750,000 Palestinians became refugees. Immediately after the war, while Jordan ruled the West Bank and Egypt administered the Gaza Strip, two separate health systems began to emerge. Furthermore, the UNRWA was established by the United Nations General Assembly in 1949 and began operations in 1950, with the mandate to 'carry out direct relief and works programmes for Palestine refugees'. Thus, as of the late 1950s, modern medical services began to become available to refugees and to the rural areas, as basic health and education infrastructures reached the countryside. However, those health services were mainly curative and rudimentary (12,23).

On the eve of the 1967 occupation of the West Bank and Gaza by Israel, there were three systems for health service provision operating in the area. The governments of Jordan and Egypt supervised the public system in the West Bank and the Gaza Strip, respectively, while UNRWA provided health services for refugees. The private sector included charitable organizations operating major hospitals and diagnostic centers or primary care centers. Following the occupation, the Israeli Civil Administration (under the Ministry of Defence and not the Ministry of Health) took over the governmental health care system and proceeded to administer it in a manner that kept it stunted and under developed, with severe budget restrictions, referral to Israeli hospitals for tertiary care, and restrictions on licenses for new medical and health care projects, thus creating a total dependence on the Israeli health system. In addition, health service delivery in that era was characterized by the disempowerment of the Palestinians in decision-making and top-level management. Although the actual service providers were all Palestinians, institutions were not developed to meet the changing needs and growth of the Palestinian population, nor were they strengthened so that they could function autonomously. UNRWA was able to develop its own system of basic services, including health, education, relief and social services, for the refugees relatively independently.

However, with the highly centralized administration in Vienna, the bureaucratic structure did not foster Palestinian capacity building and leadership at the top echelon. As for the private sector, operating small hospitals and basic medical clinics owned and run by individual physicians on a fee-for-service basis, it attempted to provide an independent alternative in health service provision, but was subject to Israeli military rules and licensing restrictions that prohibited any serious development. In defiance and in response to the acute needs of the population, grassroots popular health committees, affiliated with Palestinian political movements, emerged in the late 1970s. Although small, they were determined to fill the gaps left by the Israelis in health service provision. These active and activist NGOs based their

approach on reaching out to underserved areas with volunteer health providers and promoting preventive care, health education activities, popular participation in addressing health issues and grassroots mobilization in addition to basic curative services (23, 24).

In 1993, Israel and the Palestine Liberation Organization (PLO) signed an historic Declaration of Principles followed by a 1994 Agreement on the Gaza Strip and Jericho Area, which set the stage for the creation of the Palestinian Authority later that year. A subsequent series of negotiations and agreements resulted in further phased-out transfer of powers and responsibilities to the PNA, including overall responsibility for health care provision. The Palestinian MOH was established in 1994. In the current context, the MOH is the primary provider of health services to the population; with about 40% of primary health care visits taking place at government facilities, 31% at UNRWA and 29% at private and NGO facilities (25).The enormous task of rebuilding the ailing system has been aided by substantial donor assistance. Between 1994 and mid-1999, donors committed some US$353 million to the health sector and disbursed approximately half of that amount in actual assistance (26). Health sector reform projects in the past years have focused on upgrading and expanding infrastructure, institution building within the Ministry and human resource development. Accomplishments have been considerable in constructing new hospitals in the West Bank and Gaza and in increasing the number of government PHC clinics from 207 to 413 between 1994 and 2004 (27).

The ministerial structure was set up; a national health information system was developed; a government health insurance scheme was promoted; a plan for human resource development was developed and training carried out in certain areas such as women's health; and participatory planning with the four categories of service providers (government, UNRWA, NGO and private) in developing policies and protocols in maternal and child health was undertaken. Expanded coverage of government health insurance has also been one of the priorities of the MOH, which succeeded in increasing the number of adherents between 1994 and 2004 from 25% of households to 55.9% (25,27), but with considerable mandatory coverage for the employees of the state in addition to police and security personnel. However, the financial crisis of the MOH beginning in the second half of 1997, when the Ministry of Finance failed to allocate it the expected budget, led to a deterioration of government services including a lack of essential drugs and supplies. This in turn resulted in a decline in public participation in the governmental health insurance program (28).

Direct out-of-pocket household expenditure on medical care has come to account for 40% of total health expenditure in the West Bank and Gaza Strip (25), raising concerns about equity in health care, particularly given rising poverty and the needs of the thousands injured by the Israeli army, who require long-term care. Faced with the new situation on the ground, the role of NGOs began to change in several respects. Certain NGOs have had to downsize their operations, while others remain significant providers of essential services, such

as primary care services, community-based rehabilitation, mental health schemes and health education, and they constitute a vital platform for debate on issues of health policy and planning, centralization/decentralization, coordination and information-sharing. While the private sector has expanded rapidly in the past few years (29) with phenomena such as group practices and private health insurance schemes beginning to develop, the extent to which its practices are monitored and regulated as well as the implications for the public sector of its rapid growth remain unclear.

3. Economic situation

Prior to 1993, the Palestinian economy was mainly dependent on the economy of Israel for trade and employment opportunities (30). Currently the PNA still lacks control over the borders and the natural resources, in particular the scarce water resources; two major prerequisites for giving impetus to economic development. Figures from the World Bank Development Report 2007 show that the gross national income (GNI formerly gross national product or GNP) in 2005 was $3.8 billion. The per capita share of the GNI was $1,120. The average gross national income per capita in the low-income countries was about $580, in the middle-income countries $2,640, and in the high-income countries $35,131. Compared with these figures, the Palestinian economy is situated between the low and the middle-income countries (31).

The Palestinian economy has continued to deteriorate since the signing of the Oslo Agreement (32). The unemployment rate in the West Bank and Gaza Strip was around 14% in 2000 increased to 23% in 2005 and expected to reach 47% in 2008 (33,34). The rise in unemployment is mainly a result of the sharp drop in the number of Palestinian workers in Israel due to the closure policies as well as to the substitution of Palestinians by workers from foreign countries.

The closure policies refer to the banning or the restrictions on the movement of people, goods and services within the Palestinian localities in the West Bank, between the West Bank and Gaza Strip, and between the West Bank/Gaza Strip and Israel. These measures also include restrictions on the movement of people to foreign countries.

Given the heavy dependence of the Palestinian economy on Israel in the areas of trade and labour, the impact of the closure policies on the economy is highly destructive (32,35). The closure policies, besides the decline in the productivity of the various local economic sectors, the sharp drop in the PNA's revenues and the destruction of some of the basic physical and social infrastructure and private properties, are leading to significant losses in the Palestinian economy (36). A decrease in the income of the Palestinian households parallel to the increase in the level of unemployment has led to an increase in the number of households living below the poverty line; 28% in 1998, 44% in 2005 and expected to reach 74% in 2008 in case on suspension of clearance revenue transfers, trade and labour restrictions and reduced aid flows (34,37).

4. Social characteristics

The majority of the population is Moslem (about 97%). Christians constitute 3% of the total population. In addition, there are also two very small Jewish communities who consider themselves Palestinian Jews; namely the Jewish Orthodox community Neturei Karta in Jerusalem and the Samaritan community living on Mountain Gerizim in Nablus (38). The average household size was estimated at approximately 5.7 person (22). The largest part of the population (80%) is under the age of 35 and the median age of the population is about 16.7 years. Hence, the dependency ratio which was estimated at about 101% in 1999 decreased to 96% in 2005 (20,39), while the dependency ratio were 83%, 50%, 47%, 54% and 56% for Africa, North America, Europe, Asia and the world respectively (40).

Although a relatively good literacy rate has been achieved, recorded at % 92 in 2000-2004 for the population aged 15 and above, a gender gap in education still persists (31,41). Women in the Palestinian Society tend to marry at earlier ages than men do. The median age of the first marriage was estimated at 18 and 23 for females and males, respectively (42). The high percentage of marriages between relatives is a salient aspect of the Palestinian Society that is related to the prevailing traditions and cultural values. It is evident that marriage between relatives, early marriages, and high fertility rates request special attention in addressing the health of women and children.

Finally, the Palestinian health care system is functioning in a complex context (**Figure 1**). The ambiguous political and economic environment, the unique geographical separation of the West Bank and Gaza Strip, and the socio-demographic and cultural characteristics of the Palestinian population, as well as the international pressure of the aiding agencies are critical elements. The interaction of these factors as well as the fragile context of the Palestinian health care system makes the organisation of health care and health policy development a very complicated process (11).

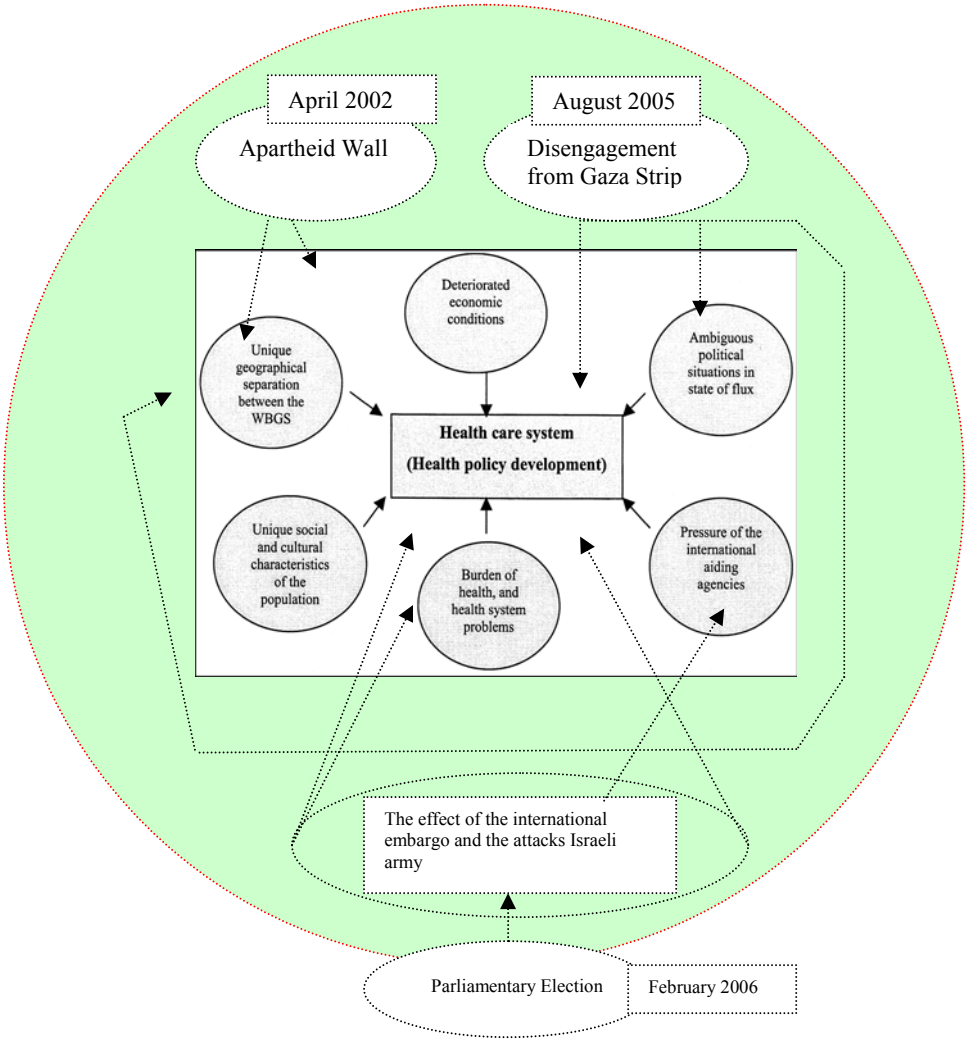


Figure 1: The context of the Palestinian health care system (Adapted from Hamdan and Defever 2002 (Ref. 11)

Central Concepts and Theories

1. The Concept of the "Health"

To estimate health in different groups including the PHC populations, it is important to first define what health is. According to a disease oriented tradition, health is defined as the absence of disease. Health is thought of as an "objective" or "true" indicator of health. As a consequence, the judgement of a health professional can define what constitutes health. This perspective on health has traditionally been used in the medical society. One could also argue that health and disease are not mutually exclusive although it is likely that a person who has a disease experience poor health. The World Health Organization (WHO) captures this more subjective side of the health concept. Health is seen as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (43). However, it was argued that the original definition of health presented by the WHO is almost impossible to achieve. The WHO then defined health to be the ability to function normally within one's social setting. Subjective health captures the perception of health is and is not merely the absence of disease. As a result one way to improve health is to use health promoting interventions that focus on life-style changes and psychosocial determinants of health. According to the WHO health promotion refers to a process of enabling people to exert control over and improve their health (44). The capability of the individual to take action and change his or her situation is emphasized. It is also argued that effective interventions should be based on an analysis of the determinants of health. Moreover, the WHO emphasises that it is important that there is a political and public awareness of the problem and need for action (44).

2. The Concept of "self-rated health"

Self-rated health can be measures using several items, which are then combined into a scale. However, global self-rated health refers to a single item question about the general health. Thee types of categories of questions have mainly been used in the literature to measure self-rated health. A non-comparative question refers to the perception of how health is perceived in general, and an age-comparative question reflects the perception of health in relation to one's peers, or to persons of the same age. Finally, a time-comparative question asks individuals to rate their current health status in relation to his or her previous health status at a specific time in the past (45). Self rated health has been found to predict physical and psychological symptoms, functional ability, as well as mortality (45,46,47,48,49). The association between global self-rated health and different health outcomes are sometimes even better than medical diagnoses.

Most studies on national populations show that self-rated health is independently related to mortality, even after controlling for baseline health status and demographic variables (46,48,50). There seems to be social gradient in self-rated health between low and high social classes. Better self-rated health has been linked to better socioeconomic status (51). However, the relationship between self-rated health, sex and age is also complex. There are findings to indicate that on average women rate their health as worse than men

(45). Other findings indicate that the relationship between self-rated health and sex disappear when other factors are adjusted for (46). Age is often associated with the susceptibility of disease. On the other hand, when using the non-comparative measure, older persons may underestimate their health, whereas younger persons are more likely to rate their health as worse than those in the same age (52). This would have to be related with the fact that young persons would compare their health to a healthy group, whereas older persons would compare their health to a less healthy group. Several explanations have been given to why self-rated health can predict different health outcomes. self-rated health can review important aspects of health, and then tell us something about the total or overall health of the individual. A single item measure of health may force the individual to summarize different states into one measure. This indicator of health may include physical, psychological and social dimensions of health (46,49).

It has been argued that self-rated health describes health as it is defined according to the WHO (53). Self-rated health then covers dimensions of health, which cannot always be observed by others and gives additional information to that of a traditional health examination. Self-rated health could also reflect the individual's knowledge of his or her life-style and habits, which in turn determines health outcomes (49). Good self-rated health is related to social support, physical activity and moderate alcohol consumption, although the association between self-rated health and life style is less conclusive (45,46,54). Psychological distress can explain part of the association between the self-rated health and mortality. In a study examining the relation between self-rated health in late adolescence and mortality, the association between self-rated health and mortality during a long-term follow-up was to a large extent explained by factors measuring psychological distress experienced in adolescence (55). It is also suggested that self-esteem, social support, sleep quality and sense of coherence are predictors of future self-rated health, and these factors are links to various future health outcomes (56). Possibly these factors may be thought of as resources, which can be use to cope with stress in life. It has been argued that self-rated health could mirror the extent to which a person has resources to cope with stress (57). This may in tern be represented in a biological state, which could possibly lead to disease (57,58).

3. The primary health care strategy

Primary health care is a crucial element of national health care delivery, especially in developing countries. The PHC system is responsible for providing various outreach facilities to the community. The PHC as a term was introduced to the Eastern Mediterranean Region in the regional director's report of 1975, before that, the term basic health service was used (59).

The PHC, which emphasized in Alma-Ata declaration, and became a core policy for WHO in 1978, is defined as "Essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community by means acceptable to them and at a cost that the community and the country can

afford to maintain at every stage of their development in a spirit of self-reliance and self-determination (60). The eight components of PHC which adopted are immunization against the major infectious diseases, maternal and child health**, a**ppropriate treatment of common diseases and injuries, adequate supply of safe water and adequate sanitation, education concerning prevailing health problems and the methods of preventing and controlling them, prevention and control of local endemic diseases and provision of essential drugs (14).

The principles of PHC are accessibility, appropriateness, inter-sectoral/inter-disciplinary, continuity of the care, population health, and community participation, efficiency, affordable and sustainable. The PHC extends beyond the traditional health sector and includes all human services, which play a part in addressing the inter-related determinants of health such as income and social status, social environment, working conditions, culture, physical factors, social support networks, prenatal/early childhood experiences and the level of educations (59,60).

In 1994, the Palestinian national health plan emphasized making PHC available and accessible for all people and encouraging the community to promote, achieve, and maintain optimum health for all residents through the provision of PHC services (15). For improving the health status of Palestinian people, in 1999 the MOH adopted a comprehensive PHC strategy through Palestinian National Strategic Health Plan (PNSHP) (16). Since then, a number of services and programs have been instituted as a means of meeting the demands as well to fulfilling the country's commitment to the WHO's goal of 'Health For All By The Year 2000' (60). By the end of 2003, MOH was providing comprehensive PHC services throughout 391 centers (54 in GS; 337 in WB) and 30% of the workforce of the MOH were employed in PHC (61). Since the Alma-Ata declaration in 1978, there have been rapid changes seen in health status, demography and socioeconomic trends. Therefore, WHO recent report (62) urge the need to review the PHC outcomes.

4. Health management information system in PHC

A variety of programs falls under the ambit of PHC, requiring routine reporting of information, in addition to routine monthly information. The PHC sector needs to deal with large amount of extraordinary data arising from epidemics, deaths… etc. In addition, delivering primary health care to population is a complex endeavour that is highly dependant on health information. The HMIS is integrated data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency, through better management at all levels of health services. Common HMIS subsystems are epidemiological, for notifiable diseases, routine service reporting from basic health services, special program reporting, administrative and vital registration systems (63). Palestinian health workers spend a significant amount of their time engaged in collecting, recording storing or transmitting various forms of data. To overcome dealing with huge number of data, the national health information system was adopted by Palestinian National Authority in 1994 and was reemphasized on the strategic

health plan in 1999 (12,15,16), with the purpose of supporting the functioning of PHC system.

5. Primary health care utilization models

Various conceptual models have been developed to operationalize the complex and multi-dimensional issue of health care utilization. These multifactorial models offer some theoretical frameworks to be used in the research on the use of health care services to explain utilization.

5.1 Purola's model

In the model developed by Purola, the basic setting for the use of health care services is, firstly, the disease in the medical sense and, secondly, the perceived illness as an originator of behavioural reactions. Thirdly, the predisposing and enabling factors act as modulators of the person's behavioural reactions (64).

5.2 Antonovsky's model

Antonovsky's model of utilization includes host characteristics, characteristics of the medical institutions and characteristics of the larger sociocultural environment. This model takes into account the fact that medical care constitutes a small social system, which may be used to deal with diffuse social and psychological needs when the system is available, when its use is socially encouraged, and when it is receptive to peoples' needs and orientation (65).

5.3 Health belief model

The health behaviour of a population can also be explained using the health belief model originally conceptualized by Becker (66). In this model, the person's reactions to symptoms of illness are modified by various factors, e.g. motivation, the experienced threat of illness and coping factors. The model includes an interesting concept, "cue to action", which means that different cues, information or recommendations may act as the final stimulus to the behaviour carried out, e.g. an encounter with a physician (67)

5.4 The biopsychosocial model

The biopsychosocial model originally introduced by Engel in 1977 (68) has not been used, until now, as a conceptual basis of research on health care utilization. The biopsychosocial model is based on the general systems theory of Von Bertalanffy in 1968 (69), which implies that all levels of an organization or system, beginning from molecules and cells and ending up with society or biosphere, are linked to each other in a hierarchical relationship, so that a change in one effects changes in the others. Theoretically, as Engel pointed out, systems theory provides a conceptual approach suitable not only for the proposed biopsychosocial concept of disease but also for studying disease and medical care as interrelated processes (68). Thus, the biopsychosocial approach would benefit the research on health care utilization, which aims to understand more thoroughly the relationships between various explanatory factors (e.g. somatic diseases, psychological factors and social environment, such as family) of health care utilization.

5.5 Andersen's behavioural model

A widely researched model of health service use was first presented by Andersen in the 1960's (70,71) are used in this study. Andersen (1995) emphasises the importance of continued research on health services' use (72). The model argues that use of health services is a function of predisposing, enabling and need characteristics of individuals. The predisposing component centres on the idea that some people have a greater inclination for using health services than others and this tendency can be predicted from individual characteristics prior to an illness episode. The predisposing characteristics have 3 dimensions -demographics (e.g. age, gender and marital status), social structure and health beliefs. Structure is seen in the model as education, family size and employment. Health beliefs include notions such as health worries, and control over future health. Health belief like other predisposing variables is not considered to be direct reason for using services but result in differences in inclination toward the use of health services. These three dimensions are seen as the socio-cultural element of the model (73). The enabling component centres around the idea that people may well be predisposed to using health services but also need some means of obtaining them. The kinds of factors that typically make health services available for consumption are measured by family source such as income and factors related to community resources include rural urban nature of the community in which the family lives. Clearly predisposing and enabling characteristics are necessary for health service use but the individual must also have or perceive some illness. This need is seen as the most immediate cause of health service use and has two dimensions - the first represents the amount of illness that an individual perceives exists - in most studies this is a single item global rating of health status. The second dimension is seen as professionally evaluated need (i.e. ratings by a physician) (73,74). The Andersen model has provided a comprehensive research agenda for health care use studies since its inception in the late 1960's and it continues to be relevant in providing a useful analytic framework and starting point for the discussion of the utilization of primary health care (72,73,74,75,76).

5.6 Use of primary health care services in Palestine

Health care utilisation is typically measured via physician visits, hospital nights, bed disability days, use of home health services and use of other health professionals. This is a relatively simplistic level of measurement but is very common in the service utilisation literature (75). In Palestine: 4,273,820 visits to the MOH-PHC centers were reported in 2004 for general practitioners in comparison with 3,565,208 visits in 2000, the annual average of visits was 4,149,260 visits in the last five years. The ratio of visits per person was 1.17 in 2004 compared with 1.28 in 2000. In West Bank: in 2004, about 2,083,249 visits were reported compared with 1,298,186 in 2000; with an annual average of 1,794,017 visits in the last five years. The ratio of visits per person was 0.9 in 2004 compared with 0.7 in 2000. In Gaza: in 2004, about 2,190,571 visits were reported compared with 2,267,022 visits in 2000, with an annual average of 2,355,243 visits in the last five years. The ratio of visits per person was 1.6 in 2004 compared with 1.9 in 2000 (27).

6. Primary health care quality: The patients' points of view

The quality of health services has traditionally been based on professional practice standards, while recently it has been defined as an observed quality which focuses merely on structural and process measures and the perceived one relates to the views of patients, with the latter one attracting more importance (77,78,79,80,81). According to Wartman, health service quality includes three dimensions: client quality, professional quality and management quality (82). Patients' perception about health care has been accepted as the most important indicator for measuring client quality (outcome) of health care and a critical component of performance improvement and clinical effectiveness (83,84,85,86). There are different studies in Arab countries about patient's satisfaction towards PHC having used different kinds of instruments (87,88,89,90).

In European countries EUROPEP is receiving wider attention recently following its creation by EQUIP, the quality of care network of WONCA Europe, the European Society of General Practice Family Medicine. EUROPEP has been validated and standardized in different international settings and is used for collecting information regarding the patients' evaluation of the care provided by general practitioners (GPs) (91). It provides relevant feedback to the GPs, to health care policy makers at different levels and even to the patients themselves (91,92). Several European studies have been published reporting the use of this instrument (93,94,95,96,97,98,99,100). In Palestine, current health policy focuses on the important of PHC and on care provided by GPs. However, there is a lack of standardized and validated instruments to evaluate the care provided by GPs in this country.

The significance of the study

Among the things that affect health and health care in Gaza Strip is the damaged infrastructure (101,102,103,104,105). Lifestyle factors, social environment, economic status, and access to health care can all affect health and health care utilization (106). Research also shows that there are also subjective determinants to health care and health care consumption: "Those patients who feel more ill or felt more vulnerable to the threats of a bad health have a lower locus of control concerning those threats and tend to generate a higher health care consumption (107)".

Another important aspect of this study is the measurement of the satisfaction of patients with health care providers. In most developing countries, it is rarely taken into account how local people explain illness, seek advice or use traditional healing methods. The emphasis has been on hospitals and curative care rather than on trying to address local health needs equitably and effectively. Also, in countries at all levels of development, assessing the opinions of health service users is increasingly promoted as an integral part of quality evaluations (108). Therefore, this urges to investigate and to assess these issues.

This study in itself could prove to be very important in developing evidence based PHC strategy, policy and implementation: In truth, while many pay lip

service to the importance of PHC as priority in policy making and planning, in fact, research attention and budgetary allocations continue to be directed toward technically oriented interventions that are costly and do not necessarily adequately address the population's needs. In this sense, this work and its analysis is bound to assist health policy makers in influencing the course of action, and in directing PHC services development towards evidence-based practices that takes into consideration the health status of people living under unique circumstances, such as those in the Gaza Strip.

Part II

Materials and Methods

Paper I

The study was a descriptive using a retrospective review of data on the PHC from 1999-2003.

Data collection

A. Content analysis: content analysis of the Palestinian National Strategic Health Plan 1999-2003 (16) was used. This analysis involved the systematic identification, linking and counting of specific characteristics, in order to compare categories and to infer from the data. This technique involves categorizing data to compare and to produce counts of the frequency with which words, phrases and themes occur (109,110). This analysis explored areas of focus for each component mentioned in the PHC strategy. Health indicators are variables that help to measure changes and facilitate concise, comprehensive and balanced judgments about health conditions (111,112), were employed in this study. Besides the demographic/health status indicators, 41 indicators were operationalized based on PHC components & area of focus.

B. Literature review: MOH annual reports (13,27,113,114,115,116,117) generally reflect data from one to two years or more prior to their publication. Other data related to demographic and environmental indicators were obtained from Palestinian Central Bureau of Statistics, PCBS (39,118,119).

A number of adopted health indicators are published by the Eastern Mediterranean Regional Office (EMRO)-World Health Organization (WHO) (120). Data on demography, environment, vital statistics, mortality and vaccination coverage are reflected in these indicators. A selected health indicators and their definitions and calculations are based on Last 2000 & MOH-PHIC 2004 (121,122), as shown in **Box 1 of Paper I**.

Statistical Analysis

Frequencies were used for content analysis of the PNSHP 1999-2003. Difference percent for each health indicator was calculated as follows: [(data from the end of the study period- data from the beginning of this period)/ data from the beginning of this period]*100; positive means increase, negative means decrease. Difference of some health indicators was not calculated because initial data were not available or were zero. Analysis of Variance (ANOVA) was performed to test the variation of vaccination. SPSS software

Version 8 was used for data analysis.

Paper II

This study is divided into two parts. The first part includes a narrative summary of history of HMIS prior to 1999 and the modeling of HMIS that is currently applied in the MOH (informative part). The second is the evaluative part, which includes the evaluation of the content of Palestinian strategic health plan (1999-2003) in respect to HMIS and the identification of negative and positive aspects of the Palestinian HMIS.

Informative part: A document research was performed, a methodological review of available literature was undertaken and data collected for almost the whole of the HMIS currently present in the health sector of Palestine. Published and unpublished documents including government reports (114, 115,116,123,124,125) and other literature such as guidelines and recommendations from external authorities (126,127) were reviewed. Situational analysis was used to describe the HMIS in the period prior to 1999. Further information was obtained from health decision makers, HMIS professionals and stakeholders.

Evaluative part: Content analysis, which involved the systematic identification, linking and numerating of specific characteristics, in order to make inferences from the data (109,110), was used to evaluate to what extent the Palestinian National Strategic Health Plan 1999-2003 (16) has emphasized the HMIS. The working HMIS model in Palestine is presented in a diagram, based on the authors' experience. For identification of areas of positive aspects and negative risks that influenced the governmental HMIS, a SWOT analysis (128) was undertaken.

Paper III

Settings and target population

The research was carried out in the PHC centres that belong to the MOH or to the UNRWA that are located in the Southern Governorates of Palestine (Northern, Gaza, Middle Zone, Khan Younis and Rafah).

The study was carried from September 1st to December 30th, 2005. The sample was drawn from patients attending GPs services in these centres and the required sample size of 1067 was determined based on a requirement for 95% confidence limit with 3% maximum error of estimate and a conservative estimate of proportion of 50% (129).

Based on the response rate, the ability of patients to complete the interview and the inclusion criteria, the data of 956 patients were used for statistical analysis (**Figure 2**).

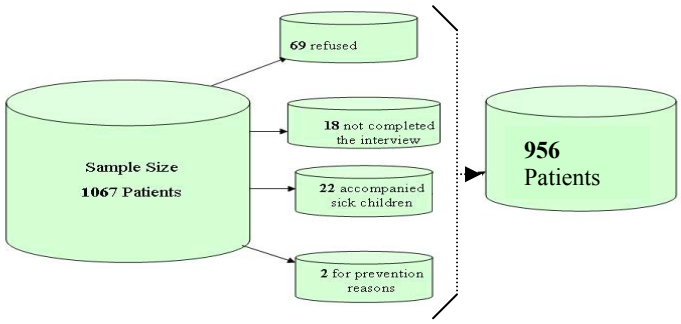


Figure 2: The final study sample based on patients' response, ability to complete the questionnaire and the matched inclusion criteria.

The study sample was multi-stratified, the first stratum being the governorates, the second being the localities and the third the clinics. The demographic data of 2005 provided by the Palestinian Central Bureau of Statistics (PCBS) were used to calculate the percentage of population in each stratum (**Appendix A**). (130). Clinics with the highest visits per day were selected from each locality. The definition of locality: urban, rural and refugee camp are sumurrized in **Appendix A2**). The sampling scheme is illustrated in **Figure 3 and Table 1 of Paper IV**.

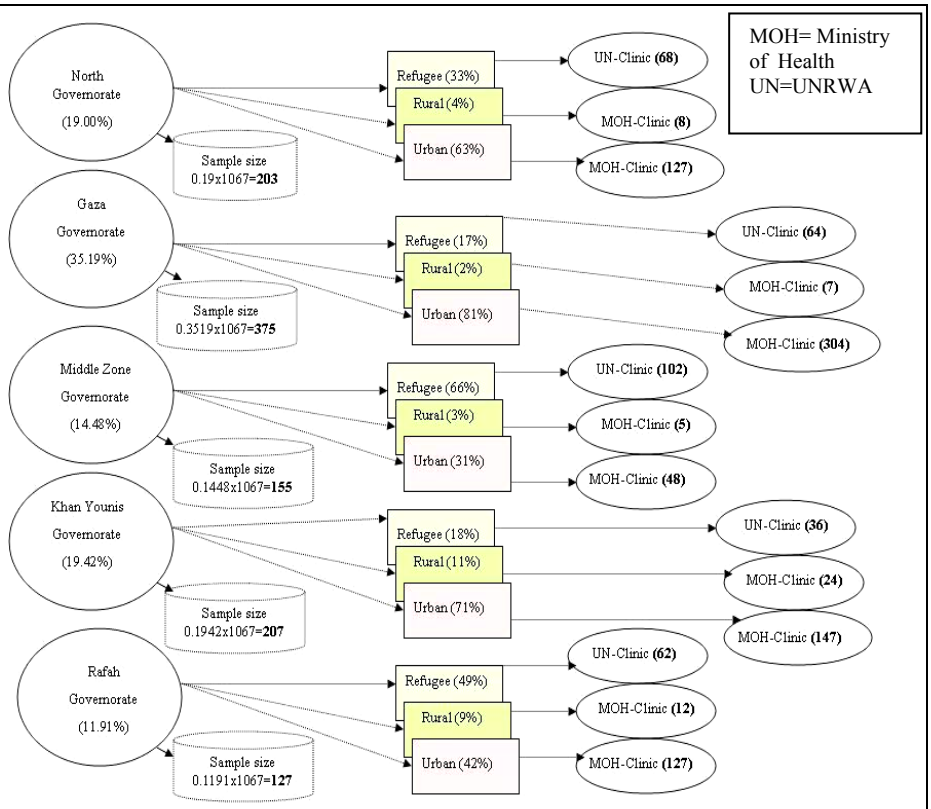


Figure 3: Sample breakdown into different localites of each governorate and selected clinics

A random sample of patients attending PHC was drawn on a daily basis using numbers assigned to available chairs as a sample frame. Patients were excluded form the study if they were severely ill and less than 18 years of age. The interview was conducted after the end of the patient's consultation with the general practitioner (exit interview) in order to reflect recent information. The interview was conducted by the first author or a well-trained expert.

Study variables and instruments
The original responses for some variables were collapsed into fewer categories to avoid categories with very few persons.

Dependant variable (Utilization)
Utilisation of PHC services can be measured from records, health diaries, and questionnaires but questionnaires are the most frequently used source of data (131,132,133,134). The utilization of the PHC provided by the physician was studied in terms of the probability of use (i.e. the proportion of people that utilized at least once the health service during the past 2 months equivalent to at least 3 visits per six months) (135).

Independent variables
1. Predisposing factors
The variables included age (two age groups 18-44 and $\geq$ 45 years), gender, and marital status (single, married, divorced and widowed). Educational level is a common measure of socio-economic status (136) and current research literature suggests it is the strongest predictor of socio-economic health inequalities (137). In our study educational attainment is defined the educational degree attained by the patients. Work status measured as dichotomous yes/no response. Family sizes were distributed into quartiles with the first one as the reference category. Life events measured by two questions formulated for the real situation based on the author experience of Palestinian situation; one related to financial and the other related to psychological problems. A psychosocial problem was operationalized in one question related to the living conditions; we asked the patients how they perceived their living conditions in general bad or good.

The English version of questionnaire is illustrated in **Appendix B1** while the Arabic version is illustrated in **Appendix B2**. Also we have chosen to examine the effect of a cognitive style that is reflected in the degree to which people feel that they have an influence over what happens to them. This concept, called the "locus of control", was first proposed by Rotter in 1962 who classified it into three categories; internal, powerful others and chance (138).

Health locus of control (HLC) was added to the predisposing variables using the Multidimensional HLC questionnaire (**Appendix C**) which asks respondents to indicate on a five-point scale their level of agreement with a number of statements regarding the control of their health (139). Respondents are given a score for each of the three areas: internal, powerful others and chance. Internality and externality are not opposite ends of the one spectrum, and it is possible to have both internal and external beliefs about health status at the same time. The English source of

HLC (**Appendix C**) was validated, translated and culturally adapted based on standard and recommended methods (140,141). The method is described in details in **Appendix D,** while the experts who evaluate the content validity are listed in **Appendix E**. The internal consistency was assessed by measuring Cronbach's alpha for the three dimensions which was 0.73 (95%CI: 0.70-0.76), 0.87 (95%CI: 0.86-88) and 0.55 (95% CI: 0.51-0.60) for internal, powerful others and chance HLC respectively.

2. Enabling factors

An income represents a dimension of socio-economic status (i.e. a material component, rather than a knowledge component) (142). Income was categorized based on the level of poverty line which reported as 378 US$ for a six-individual family size (143). The analyses were also performed with locality reported by patients. Three localities were included urban rural and refugee camps. Since there is overlapping of urban and rural localities, we collapsed into one variable versus the refugee camps which the later characterized by different conditions; high population density and bad environmental health conditions (144,145).

3. Health needs factors (health status)

Health status- as a proxy for need- was measured by one indicator: Self-rated health- subjective assessment of one's overall health- is one important variable in studies of health outcomes (146) was measured in terms of responses to the question "How is your health in general"? "(very good, good, moderate, poor or very poor)". This question is a validated WHO-instrument for the measurement of perceived health status (147).

4. Health promoting life style indicators

There are a demonstration of association between smoking and the morbidity and mortality from the non communicable diseases in the Eastern Mediterranean Region which expected to increase the use of PHC utilization (148). The WHO has recognized physical inactivity as a major threat to worldwide population health (149). Therefore, we decided to chose physical activity practicing and tobacco use as measurable indicators for health promoting lifestyle (see **Appendix B**).

5. Patients satisfaction with PHC

EUROPEP- which is an instrument used for measuring patient satisfaction of the general practice (91,92) was used in terms of mean score of the 5 likert scale labelled from "poor =1" to "excellent =5". English version of EUROPE is illustrated in **Appendix F1** while the translated and culturally adapted into Arabic version is illustrated into **Appendix F2**. Validity of using this instrument in Palestine is discussed in details in Paper IV.

Statistical analysis

Cross tabulation between primary health care utilization and variables was applied. Bivariate analysis was used to measure crude odd ratios with 95% confidence intervals. The utility of independent variables in accounting for variability in physician visits was examined via a logistic regression. Adjusted

odds ratios (OR) with 95% confidence intervals (CI) were used in logistic regression models. Goodness-of-fit was tested with the Hosmer-Lemeshow test. All statistical calculations were done using the statistic software SPSS version 15.0 (150).

Analytical Strategy

After appropriate data screening analyses, the analyses were modelled on the strategies reported elsewhere (151,152). Predisposing variables were entered first; enabling variables second, need variables third, health promoting lifestyle fourth. Finally outcome variables were added. The rationale for entering variables in this order is based on the general observations that need characteristics has tended to dominate the proportion of variance in health care use explained by the Andersen model (153). This sequence of variable entry enables the assessment of impact from need, health promoting lifestyles and outcome based variables on health care use above and beyond the proportion of variance explained by predisposing and enabling variables.

Paper IV

Sample size and sampling procedures are summarized in **Table 1 of Paper IV**.

1. Instrument

EUROPEP consists of 23 items or aspects of care explored by using a five point Likert scale with the extremes labelled as “poor” and “excellent”. The questionnaire covers two main aspects: clinical behaviour (item 1-16) and organization of care (item 17-23). Further, EUROPEP issues can be divided into five different dimensions of medical and technical care, the doctor-patient relationship, information and support, availability and accessibility of care and organization of services (154).

2. Translation

Permission for translating English version of EUROPEP (**Appendix F1**) into Arabic was obtained from the instrument’s developers. Forward and backward translation and cultural adaptation were conducted according to the methods described by Guillemin et al. 1993 (140) and the minimal translation criteria (141). The Arabic language version (**Appendix F2**) was pilot-tested using a cognitive debriefing method with ten patients (155,156).

3. Settings and target population

Mentioned in details previously, (see the methodology of **Paper III**).

4. Validation

Content validity is used to assess the degree to which an instrument measures all relevant aspects of the conceptual domain intended to be measured (157). Content validity was done by using a panel of 12 medical and pubic health research experts (**Appendix E**) who received the objectives of EUROPEP together with its final Arabic version. They gave their feedback through a scale ranging from "excellent" to "poor" for each item. To check the structure validity of the EUROPEP in Arabic, an exploratory factor analysis was used using principal component extraction and varimax rotation in order to identify the factors that comprise the Arabic version of EUROPEP (158). We

considered levels of 0.40 as the minimum accepted factor loading. Cronbach's alpha was used to assess the reliability of the questionnaire by measuring internal consistency through checking the components of the questionnaire against each other (159).

Paper V

Settings, target population, instrument and sampling procedures: Mentioned in details previously (see the methodology of **Paper III & Paper IV**).

Statistical Analysis

SPSS 15.0 (150) and EPIINFO (160) were used for data analysis. Counts and proportions were used to describe recoded answers for each question (*"satisfied" 4-5, "non-satisfied" 1-3*) (100). The average response equivalent to *"3"* was added to the negative category, based on a previous similar study considering neutral answers as *"unsatisfied"* (87). Mean ± standard deviation and (minimum-maximum) statistics were preferred to present continuous variables. Independent samples t-test and the non-parametric Mann-Whitney were used to compare continuous variables between two groups (e.g. age). Associations and differences between categorical variables were assessed by Pearson's Chi-Square (161,162).

Ethical approval

The Helsinki Committee of the Palestinian MOH granted approval for carrying out this research (**Appendix G**). Approval for carrying out the field work and collecting the data was obtained from the general directorate of the governorates of the areas concerned (**Appendix H**) and from the UNRWA field health program (**Appendix I).** A consent letter (**Appendix J**) was presented to the patients prior to the interview and they were given the right to accept or reject participation in the study. Verbal clarifications were given if required.

Part III

Aims and Results of the Papers

Paper I

The aim of this paper was to evaluate to what extent PHC objectives have been achieved and to explore areas of potential improvement. This paper reports on achievements and discusses the prospects of Palestinian PHC.

The objectives of the study were:

1. To assess emphasis on PHC within the content of PNSHP 1999-2003.
2. To illustrate the trend of demographic/health status indicators for the period 1999-2003.
3. To compare operationalized PHC indicators between the beginning and the end of the study period (1999-2003).

Results

The number of PHC centers increased by 14.7% (Gaza Strip "GS" 38.5% & West Bank "WB" 11.6%) between 1999 to 2003. The population per PHC center in WB is lower than in GS (7,025 versus 25,377). Visits to GPs per person per year increased from 1.3 in 1999 to 1.5 in 2003 in GS and from 0.69 in 1999 to 0.87 in 2003 in WB; an increase by 15.4% and 26.1% for GS and WB respectively.

The primary health care strategy

The current status of PHC strategy and the population's health status are reported in this paper. Content analysis revealed that health promotion and environmental health compose the highest content of the PHC chapter with 18.2% and 16.4% respectively (**Table 1 of Paper I**). The areas of focus for each PHC component are listed in **Table 2 of Paper I.**

Demographic/health status

The demographic/health indicator trends during the study period is shown in **Table 3 of the Paper I.** At the end of this period, crude birth rate (CBR), crude death rate (CDR) and total fertility rate (TFR)) decreased by 17.1%, 0.6%, and 11.8% respectively . In the same period the total population size, infant mortality rate (IMR) and life expectancy (LE) increased by 20.4%, 8.6% and 0.80% respectively. Population size and IMR were increased more in the GS, while CBR, CDR, and TFR decreased more in the WB (**Table 4 of Paper I**). Heart diseases were found to be the first leading cause of death and accounted for almost one-fifth of the total mortality in Palestine (**Appendix K**).

Target strategies of primary health care

Table 5 of Paper I summarizes the targets of the 1999 PHC strategy to be achieved by the year 2003.

Health promotion and education

Cause specific mortality rate (CSMR) per 100,000 populations decreased by 13.2% for all heart diseases (AHD), 6.5% for stroke and 20.8% for lung cancer. The CSMR of breast cancer per 100,000 females decreased by 16.7%. Prevalence of smoking among individuals aged more than ten years decreased by 18.6%. The incidence rate per 100,000 populations of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) decreased by 64.3%, while the incidence of sexual transmitted disease (STDs) increased by 65.5%. Regarding alcohol consumption, the figures were neither available at the beginning nor at the end of the study period.

Women's Health

Maternal mortality ratio (MMR) per 100,000 live births and the prevalence of anaemia among women decreased by 66.0% and 40.9% respectively. The number of governmental family planning centers, percentage of married women used contraceptive and proportion of deliveries attended by trained personnel increased by 46.3%, 13.7% and 0.4% respectively. The percentage

of pregnant women attended by governmental trained personnel increased by 19.8% and 21.6% for GS and WB respectively (see **Table 6 of Paper I**).

Mother and child health:
Diarrhea disease was the primary focus area of the mother and child health component, while the plan did not mention decreasing its prevalence by the end of the study period. Regarding the infant mortality rate (IMR) and neonatal mortality rate (NMR) per 1000 live births there was an increase of 8.6% and 46.7% for IMR and NMR respectively. The unified vaccination program has been adopted in Palestine since 1995 (**Figure 1 of Paper I**). Vaccination coverage of diphtheria, tetanus (dT) for teenagers and Tetanus toxoid (TT2) for childbearing women increased by 1.9% and 113.6% respectively. Under-five years of age mortality rates (U5MRs) per 100,000 children due to acute respiratory infection (ARI) decreased by 56.9%. The vaccination coverage for Diphtheria, Pertusses, Tetanus (DPT3), Trivalent Oral Polio Vaccine (OPV3), Hepatitis B Virus (HBV3), Bacillus of Calmet and Gurin (BCG) and measles improved (98-100%) by the end of the study period. The trend of vaccination coverage in Palestine during the study period revealed a significant improvement (see **Table 6 of Paper I**). There were no reported cases of polio, measles as well as neonatal tetanus in 2003 (see **Table 7 of Paper I**).

Environmental Health
Although there is an improvement water supply network (91.9% in urban, 63.3% in rural and 89.4% in refugee camps in year 2002), the microbiological examination indicated contamination of drinking water (prevalence of contaminated water samples with coliform was 15.5% and 20.4 for 1999 and 2003 respectively). Also the majority of samples (72.3%) collected from drinking water wells in 2003 were contaminated by high concentration level of chloride (> 250 part per million, ppm). With regards to nitrate, 60.4% of samples were contaminated by high concentration level of nitrate (>50 part per million). The percentage of houses connected to public sewage networks varied according to locality; the sewage network covered 56.4% of urban houses, 6.8% of rural houses, and 71.2% of the refugee. Also, connection to sewer network was higher in GS (60%) than in WB (35%). Although food safety and reduction of food contamination was adopted by planners, 25% of food samples in 2004 were contaminated by microbiological and chemical pollutants. Furthermore, by 2003 food poisoning increased by 22.4%. The amount of pesticides used for agriculture local product decreased during the study period (987 tons in 1999; 494 tons in 2003) with a decrease rate of 49.9%. The same trend was for active ingredients (450 active ingredients before 2003 versus 242 after 2003) with a decrease rate of 46.2%. Although there was reduction of chemical insecticide against sand fly, the incidence rate of *Cutanous leishmaniasis* per 100,000 populations increased (1.9 in 1999 versus 6.3 in 2003) by 213%.

Mental Health
Maximizing services of PHC facilities for mental health was adopted strategy. However, the mental health care centers increased only from 13 centers in

1998 to 15 in 2003. In the meanwhile, the reported incidence mental disorders per 100,000 population in PHC increased by approximately one-third (32 in 2000 to 42.6 in 2003).

Epidemiology

Communicable diseases: the trend of selected morbidity indicators by EMRO-WHO is listed in **Table 7**. Pulmonary and extra pulmonary tuberculosis (TB), meningococcal meningitis, HAV decreased in WB while they increased in GS. In WB and GS, there is an obvious reduction of acute flaccid paralysis (AFP), malaria and HBV, while the reported incidence of HCV increased.

Non-communicable diseases: A surveillance system has not been adopted for non-communicable diseases yet. A cancer registry system was started in GS and WB in 1997.

Family medicine

The plan focuses on family medicine by upgrading and updating the performance of general practitioners in PHC settings.

Occupational health and safety

A system for surveillance of important occupational diseases and work related injuries was planned. Currently, a health management information system is developing new software in order to have a reliable updated databank.

Rehabilitation and disabilities

The plan emphasized on making comprehensive rehabilitation services available to a wide range of the population, while there is a lack of precise figures about disability during the study period.

Aging and elderly health

A baseline study on geriatric care and services including mortality and morbidity was planned to identify their special needs.

Nutrition

It was planned to reduce the prevalence of nutrition related diseases, while it was difficult to formulate indicators since there is a lack of related information in the annual reports.

Paper II

The aim of this study is to highlight the Palestinian HMIS, with a focus on the information system, as applied in governmental PHC sector.

The objectives of the study were to:

1. Describe the HMIS prior to 1999 (when the second strategy was published).
2. Evaluate to what extent the Palestinian National Strategic Health Plan (1999-2003) has emphasized the HMIS and to what extent the HMIS has been implemented, particularly in PHC.
3. Present the PHC information system's working model.
4. Identify the areas of positive aspects and negative risks that influence the governmental HMIS.

Results

Informative part

▪ **History of HMIS (prior to 1999)**

The Palestinian health sector lacked reliable data in many areas such as morbidity, mortality and other health status measures. This fact complicated the process of identifying priorities, formulating policies and allocating resources. As indicated in the 1994 Palestinian National Health Plan, an efficient nation-wide computerized information system was necessary to improve the quality and efficiency of the Palestinian health care system. However, the existing HMIS was inadequate and lacked standardized operations at both regional and national levels. Data was not appropriately processed, leading to production of health data and indicators that were little used. In addition, MOH lacked technical and financial resources, including appropriate equipment and qualified personnel. Therefore, the MOH developed several initiatives concerning this issue and presented them to potential donors. The World Bank approved some of these initiatives.

Since 1995, the MOH, and its Directorate for health research, planning and development developed an information system to collect and analyze vital statistics in the Gaza Strip, including a computerized comprehensive population file with data such as births and deaths. This database was linked to hospital services. With the support provided through technical assistance from the health services management unit, the MOH was able to start a national information link for a new referral system. To achieve that, two pilot projects were developed, one in the Jabalia new clinic and the other at the outpatient department of Al Shifa Hospital at Gaza Strip and Ramallah PHC district center and Ramallah hospital at West Bank. The pilot projects effectively dealt with the reorganization of the medical records system.

A computerized personnel system was developed with a comprehensive profile in the Gaza Strip, in which each employee has an individual file containing personal as well as employment related data. The MOH has been using the system for human resources development, related planning purposes and policy development. The health insurance system was also linked to the MOH management information system. In addition, the MOH participated in the on-going effort to develop a national information and communication system to link all ministries and governmental agencies via satellites.

Evaluative part

▪ **The HMIS strategy (1999-2003) in respect to the primary health care**

The Palestinian national strategic health plan focused on the HMIS. The planners prioritized this subject as the third one within the institutional building chapter (**Table 1 of Paper II**). This chapter was ranked second (20.9%) in the contents of the national strategic health plan. It included a vision and mission statement (presented in Box 1 of Paper II). The key issues of the national information system strategy are summarized in **Box 2 of Paper II**. The development of a clinical information system was a first priority in the strategic health plan. This system was pilot tested in four clinics (two in the

Gaza Strip and two in the West Bank). It included the electronic patient health record and offers six modules: "*master patient index', "appointment system", "laboratories", "diabetic patient visits", "pharmacy", "patient co-payment*", while it also enabled users such as physicians, nurses and registrars to access required information via a local area network (LAN). A computer network system allowing sharing data from the central database was connected with the *"health insurance"*, *"population"* and *"mortality"* databases. The system provides reporting and follow-up of patients and it assures the patients' privacy. Through this integration, the MOH aimed to accomplish the national strategy regarding creation of health data warehouses.

Building a modern and sustainable HMIS was one of the most significant priorities in achieving the national health objectives and the MOH implemented the Health System Development Project (HSDP), financed by the International Development Association (IDA). The project commenced in May, 2000 and involved several interrelated activities that aimed to support the development of the HMIS. One of the most important activities was the preparation of "standard health data dictionary" for the purposes described in **Box 3 of Paper II**.

Telemedicine services were not implemented due to insufficient financial support. Since 1994, there have been technical telecommunication improvements between health sectors, including PHC. The repeated Israeli incursions in the Gaza Strip and West Bank led to the destruction of several telecommunication infrastructures that connected PHC centers with the headquarters.

Although the website was not mentioned in the HMIS strategy; it was established (www.moh.gov.ps) and contributed to disseminating health related data as mentioned in the mission statement of the HMIS strategy (**Box 1 of Paper II**).

▪ **Model of information system in PHC**

To understand the model of health information in PHC, three key issues have to be discussed for; first types the Palestinian Health Information Center (PHIC), second, PHC information system and subsystems, and third the interrelations and interconnections between systems/subsystems and the PHIC.

1. Palestinian health information center (PHIC)

It was established in 2003 and is acting as an incubator for supervising and archiving existing data in the MOH and working to build new systems. It has two branches one located in the Gaza Strip and the other in the West Bank, connected through a leased line. Currently the computer and network department is responsible for logistic and technical support to the Palestinian health information system.

2. PHC information system and subsystems

An *"Epidemiological surveillance system"* has been established and is continuously being improved; it contributed to reporting of notified diseases in

daily, weekly, monthly and annual reports. Further subsystems were developed such as the "*Occupational Health",* a subsystem for surveillance of important occupational diseases and work related injuries. "*Public Health laboratory"* is a subsystem created to collect data about food, water and environmental health parameters and to organize administrative work. It can generate monthly and annual reports to present PHC indicators. The "*PHC registry*" was developed and is based on the PHIC setting. This subsystem was built to collect data from all governmental PHC centers in Gaza Strip, to generate, and to disseminate monthly and annual reports on matters such as mother and child health, immunization status, family planning, school health, clinic and laboratory activities, etc.

3. Interrelations and connections between systems/subsystems and the PHIC

Figure 2 of the paper II shows how all the systems, subsystems and applications implemented in PHC are connected directly to the PHIC. In addition, PHC system and PHIC are connected with a health data warehouse. It is obvious that the data on PHC, produced by the clinical information system and subsystems, by other PHC providers (United Nation Relief and Works Agency, Non-Governmental organizations and private sector) and by the Palestinian Central Bureau of Statistics are available to the PHIC. All these data are accessible to the PHIC that processes these data in order to produce accurate PHC reports and indicators at the national level. Finally, reporting of effective data in the PHC system is expected to benefit both the general community and the decision-makers (as summarized in **Box 4 of Paper II**).

Although the MOH has prioritized the improvement of HMIS in the strategic plan, there are several positive and negative aspects of this system as indicated in the SWOT analysis shown in **Box 5 of Paper II**. The key issues of the strengths are the existence of a centralized and unified HMIS supported by well-qualified human resources.

The weaknesses center on the unavailability of an allocated budget, on lack of hardware equipment and on the absence of an action plan to follow-up the progress of the HMIS. In addition, the instability of administrative staff due to repeated changes of government ministers, particularly Minster of Health, leads to lack of continuity.

The opportunities are represented in various levels of cooperation and collaboration that are available to HMIS' staff members and administrators. This cooperation and collaboration can open several opportunities for improvement and development of the HMIS. Another opportunity is a recent establishment of World Health Organization (WHO) website for the Gaza Strip and the West Bank (http://www.emro.who.int/palestine/), which will support the MOH website in the dissemination of PHC and other health information.

The threats center on restrictions that are imposed by the Israeli occupation and international communities to the PNA. If this situation continues, it will lead to the collapse the PNA's whole systems.

Paper III

The aim of this paper was to to explore how predisposing, enabling and needs factors are related to the utilization of primary health services, taking into account the effect of further predisposing variables [life events, living conditions and multidimensional health locus of control (MHLC)], health promoting lifestyle indicators (smoking and physical activity), and an outcome variable (patients' satisfaction with primary care physician).

Results

The results of binary association between PHC utilization and the independent variables are presented in **Table 1 of Paper II**. It is observed that most of the independent variables were associated with PHC utilization. Some of the factors that showed significant differences in bivariate analysis lost their importance through the modeling procedures. Health providers and health locus of control (chance) were excluded from multiple logistic regression model because it was linked insignificantly with the PHC utilization. The results of multiple logistic regression analysis between PHC utilization and the independent variables are presented in **Table 2 of Paper III**.

As **Table 2 of Paper III** indicates, at the five steps the p values of Hosmer-Lemeshow's chi-square were greater than 0.05. Therefore, we fail to reject the null hypothesis that there is no difference between observed and model predicted values, implying that the model's estimates fit the data at acceptable level. The models were found to account for 33.9%, 34.6%, 38.6%, 39.7% and 39.8% of the variance in probability of semi-annual visits to a primary care physician for predisposing, enabling, need, health behaviour and satisfaction of primary care physician factors respectively.

It is observed that work status contributed insignificantly to the prediction of physician visits in the first model while it contributed significantly in the subsequent models. In the final model, the result indicated that the odds of PHC utilization was 1.3 times higher among elderly ($\geq$45 years) versus younger counterparts ($p<0.001$; 95%CI=2.06-6.46). Although females were found to use PHC more than male (OR =1.16; 95%CI=0.76-1.78), the utilization was independent of the gender distribution. Married patients reported 3.61 times higher utilization of PHC services compared to the utilization among single patients ($p<0.001$; 95%CI=2.30-5.66).

Also, the divorced/widowed reported 9.23 times higher utilization of PHC services compared to the utilization among the single ones ($p<0.001$; 95%CI=3.07-27.78). The educational level was negatively associated with utilization before adjustment, but when taking into account other independent variables, the educational gradient disappears. The odds of PHC utilization was 0.47 times lower among patients who have a job versus workless ones ($p<0.001$; 95%CI=0.29-0.75). The significant positive association between

utilization and household size did not persist when adjusting for the other variables. Patients living in poor conditions reported 1.52 times higher utilization of PHC services compared to the utilization among the ones who did not report poor living conditions ($p<0.05$; 95%CI=1.04-2.22).

The study reveals an association between the power locus of control and the use of the PHC services ($p<0.001$), while the OR which is closest to one (OR=1.05) and the narrow confidence interval (95%CI =1.01-1.08) revealed weak positive differences. Patients residing in refugee camps were found to be more frequent users of PHC, while the urbanization gradient disappeared when adjusting for other variable. Patients having monthly income of 379-757 US$ reported 1.57 times utilization of PHC services compared to the utilization among the ones reporting household monthly income below the poverty line ($\leq$378 US$). The odds of PHC utilization was 0.34 times lower among those who perceived their health as very good versus those who self reported poor health ($p<0.05$; 95%CI=0.12-0.97).

The reported physical activity includes home exercise (33.6%), playing football (28.0%), running/waking (18.5%) and others (19.9%). The significant negative association between these activities and utilization did not persist when adjusting for the other independent variables. In contrast, the insignificant positive association between current smoking and PHC utilization before adjusting for the independent variables turned statistically significant after adjustment. ($p<0.01$; OR 2.06: 95%CI=1.28-3.33). A significant positive association between satisfaction and utilization in crude bivariate analysis disappeared when taken into consideration the overall effect of the independent variables.

Paper IV

This paper reports on the procedure of translating and validating EUROPEP into Arabic as a first step before applying this instrument in PHC settings in Palestine and with the ultimate objective of improving the quality of care provided by GPs

Results

Translation

During the pilot testing the word “thoroughness” as translated into the word “comprehensiveness” in Arabic was not understood by some patients, and after further discussion it was reworded into “examination of whole patient’s body”. The final Arabic version was completed by participants without any additional external explanation being sought or given.

Response rate

A total of 974 patients accepted to answer the questionnaire giving a response rate of 91.3%. The condition of 18 patients deteriorated during the interview and the session was interrupted, and these were subsequently excluded from further analysis. Therefore, the analysis was carried out on the data from 956 patients.

Validation

All 12 experts rated each item of EUROPEP in Arabic as excellent, giving high level of content validity. The internal consistency of all items of EUROPEP in Arabic was very good, Cronbach's alpha being 0.83 (95% CI: 0.81-0.84). Internal consistency was found to be higher for the clinical behaviour dimension [(item 1-16); 0.80 (95%CI: 0.78-0.82)] than the organization of the care dimension [(item 17-23); 0.61 (95% CI: 0.54-0.62)]. The exploratory factor analysis yielded six factors responsible for 56% of the variance with eigenvalues over one and rotation converged in 11 iterations. The six extracted factors were labelled as follows: doctor-patient relationship, commitment of physician, information and support, medical services, organization of care and its availability, and accessibility. Internal consistency for each factor was found to be satisfactory; Cronbach's alpha more than 0.60 (**Table 2 of Paper IV**).

Paper V

The study reported experiences gained through patient evaluations' of medical care provided by primary care physicians (PCPs) in Gaza Strip-Palestine and discussed their implications on policy and primary health care system reform. Study objectives included answering the following research questions:

1. What are the general characteristics of patients consulting PCPs?
2. What is the level of patients' satisfaction towards different aspects of medical care provided in PHC settings?
3. Does patients' level of satisfaction depend on the type of health provider (MOH versus UNRWA)?

Results

A total of 24 attendees were excluded from the data file because they were not actual patients, having visited the clinic either accompanying children or for prevention reasons. A total of 69 patients refused to participate in the study and 18 patients were not able to complete all 23 items and therefore, were excluded. Subsequently, data of a total 956 patients were analysed. **Table 1 of Paper V** shows distribution of background variables across PHC providers. It is evident that patients consulting UNRWA clinics were older (39.3 year-old) than those consulting MOH clinics (36.9 year-old); t=-2.6, P<0.05. Patients from both clinics had the same level of education, while there were more women (52%) consulting PCPs. Male patients consulted mostly UNRWA physicians rather than MOH physicians, but this association between gender and provider did not reach a significant level (χ^2=3.99, P=0.06). Most patients were married (70.4%) with those consulting MOH physicians being statistically significant more than those consulting UNRWA physicians (χ^2=25.2, P≤0.001).

Evaluation of patients

Table 2 of Paper V presents patients' evaluation of all 23-items. Undoubtedly, the mean percentage of positive satisfaction among patients was poor (41.8%). The poorest rated items were the following: "getting through to the clinic on the phone" (3.0%), "being able to speak to the physician on the telephone"

(4.9%) "time spent in the waiting rooms" (22.7%) and "helping the patient to deal with emotional problems related to his or her health status"(23.0%). The highest rated items were "physical examination of the patient" (68.2%), "making it easy for patient to tell him/her about his/her problems" (58.4%), "telling patient what he/she wanted to know about his/her symptom and/or illness" (58.1%) and "listening to patient" (57.7%). The comparison between clinical behaviour dimension (items 1-16) and organization of care (items 17-23) showed that clinical behaviour was evaluated higher (mean percentage of positive satisfaction 46.9%) than organization of care (mean percentage of positive satisfaction 29.9%) with $P<0.01$.

Differences between health providers

The mean percentage of positive satisfaction with all 23-items among both MOH patients (42.5%) and UNRWA patients (40.3%) was poor. The poorest items were *"getting through to the clinic on the phone"* (2.6% for MOH and 3.6% for UNRWA), *"being able to speak to the physician on the telephone"* (5.2% for MOH and 4.0% for UNRWA). *"Helping you deal with emotional problems"* (23.3%) was the third poorest item evaluated by MOH patients while *"getting an appointment that suited you"* (19.4%) was the third poorest item evaluated by UNRWA patients. The highest item was *"physical examination of the patient"* (67.9% for the MOH and 69.0% for UNRWA).

The study revealed that MOH PCPs, as compared to their counterparts at UNRWA, were quicker to offer relief of symptoms ($\chi^2= 17.4$, $P<0.001$), explained more to the patient about symptoms and illness ($\chi^2= 10.7$, $P<0.01$), helped more the patient feel well so that he or she can perform normal daily activities ($\chi^2= 10.6$, $P<0.01$) and explained more the purpose of tests and treatments ($\chi^2= 8.5$, $P<0.01$). Patients consulting UNRWA PCPs reported more satisfaction regarding what to expect from specialist or hospital visits ($\chi^2= 4.6$, $P<0.05$) and provision of quick services for urgent health problems ($\chi^2= 4.3$, $P<0.05$). Generally, patients consulting MOH PCPs reported more mean percentage positive satisfaction, but this overall positive satisfaction difference was not statistically significant ($\chi^2= 0.45$, $P>0.05$).

Part IV

Discussion and Implications

1. National strategy for primary health care (1999-2003)

The PNSHP 1999-2003 focused on PHC, addressing health promotion and environmental health as important components of PHC strategy. Although, there is progress and promising changes on vital health, especially on CDR and life expectancy, there are also alarming indicators, which should attract the attention of Palestinian leaders. Similarly to European and global trends, one of the main leading causes of death is cardiovascular disease (heart diseases) (163,164). This shift in disease patterns indicates that Palestine, like other Middle East countries, is undergoing an epidemiologic-demographic transition state (165). This study revealed also important variations between the GS and the WB regarding the population per PHC center, which is attributed to demographic differences. The increase of visits seen by GPs per capita per

year could be explained by increased patients' demand and their satisfaction with PHC services, this being in accordance with the Palestinian health policy which invests on PHC and on GPs. Morbidity encountered by GPs, general practice care utilization and patients' satisfaction within PHC settings are subjects in need of further in-depth investigation. Those findings have implications on health policy, especially for the WB where scattered localities demand a higher number of centers (the result being a smaller population per center) and the PHC workforce needs to be drastically increased.

Health Promotion and education

Targets relating to heart-related diseases have not been achieved by the year 2003, since the mortality rate from all diseases at this category decreased only by 13.2% instead of the planned figure of 40%. In addition, the mortality rate from stroke decreased by 6.5% instead of 40%. A decrease in both breast cancer and lung cancer mortality rate has been achieved, and the latter may be attributed to the reduction of prevalence of smoking among adults. The reduction of HIV/AIDS (64.3%) exceeded the planned figure (50%). Regarding STDs, the planned targets have not been achieved yet with the incidence of STDs having increased rather than decreased. In general, improvement in health promotion services contributed to a decrease of heart and cancer diseases. This has been done through the work of the health promotion directorate in the MOH by conducting extensive awareness programs, including improvement of health related life styles (123). Regarding alcohol, it was planned to reduce the proportion of young people who use alcohol and drugs by 35%, while no data were available may be because drinking alcohol is forbidden and its trade is not allowed in Gaza strip and West bank.

Women's health

Reduction of MMR occurred (decreased by 66.0%) while the strategic figure ranged between 20-50%. Increases of 46.3% in family planning centers exceeded the planned figure (30%). The study revealed a decrease of anemia among women (40.9%) by more than four times the planned figure (10%). The planned strategy of improvement of women's health indices has been mostly achieved as a result of action by Women's Health and Development Directorate in cooperation with United Nations Funds for Population Activities (UNFPA), the European Union, Italian Cooperation and other collaborations (166).

Mother and child health care

The prevalence of diarrheal disease was reported in 1996 (167) be 13.2% with a duration episode of 4 days among children under 5 years of age. Additional surveys among refugees in 2001 (144) found a prevalence of 13.7%. Therefore; this disease needs more future consideration by MOH. The result revealed achievable improvements of U5MRs (56.9%) compared with a planned figure of 30%. Also remarkable improvement has occurred regarding immunization coverage. Eradication of Polio as well as elimination of measles and neonatal tetanus is attributed to the effectiveness of the adopted expanded immunization program (168). The study showed an increase of IMR and

neonatal mortality rate. However, this increase might not be real but may be attributed to improvement of reporting of infant deaths, neonatal deaths and live births. In general, immunization has succeeded in protecting children from vaccine-preventable diseases such as tetanus, diphtheria, measles and polio.

Environmental health

The study revealed a higher level of chloride and nitrate concentrations in drinking water wells than that of acceptable level for chloride (250 ppm) and Nitrate (50 ppm) (169), which is consistent with the previous study (170). Furthermore, this is confirmed by local governmental reports (171,172) which attributed nitrate contaminants to agricultural fertilizers and salinity to surface salination, seawater intrusion, and possible upcoming of deep brines due to over-plumbing of fresh water. Ideally, coliforms (bacteria that cause illnesses of the stomach, intestines, and other systems of the body) should not be detected in any 100ml sample of drinking water (173), but observed levels of coilforms indicate cross-contamination between poor sewage and drinking water networks. Poor environmental health and hygiene conditions have been reported as major factors in the occurrence of diarrhea with children younger than 5 years being at high risk (144). The reported increase of cutaneous leishmaniasis in WB is consistent with another study which considered the WB as an endemic area for this parasite (174).

Mental Health

There is an increase of mental health centers by two centers (15.4%), while the increase of mental disorder incidence rate is more than double (33.1%). The result is consistent with the WHO report (175), which attributed the huge increase of the admissions of new mental health patients to measures taken by the Israeli occupation forces leading to deterioration of the mental situation.

Epidemiology

Communicable diseases: The plan focused on the epidemiological aspects of communicable disease reduction. This reduction is obvious, while increase incidence of some diseases may be due to either a real increase or to an improvement of early detection of diseases such as HCV.

Non-communicable diseases: The prevalence of diabetes, cardiovascular diseases and other chronic non-communicable diseases is not well known. Therefore, conducting a national survey and further research is recommended.

Family medicine

Family medicine has been recognized in Palestine since 1995(16), while the quality of family medicine/general practice care has not been assessed at the end of the study period which urges the conducting of quality assessment study in this filed.

Occupational health and safety

There are few publications about occupational health, demonstrating the health impact of pesticide exposure among farm workers (176,177), and the health

impact of lead exposure among Palestinian children (178). Further studies related to a wide range of occupational hazards should be conducted.

Rehabilitation and disability

Despite the fact that the plan focused on expanding rehabilitation and disability services to cover up to 80% of the population by 2003, little has been done, while there was an increase of disabilities as a result of the Israeli aggression. Since the start of the Intifada (179) in September 2000, disabilities related to injuries and mental disorders have risen significantly. Five percent of disabilities in Palestine resulted from Israeli aggression and more than half (55 percent) are between 5-24 years of age (180).

Aging and geriatric health

The field of geriatric care is not well-developed in Palestine. Elderly people comprise 5.3 % of the total population and special attention should be given to them. A few NGOs are running limited geriatric services.

Nutrition

While there is lack of nutrition data within the annual reports, a recently published report has emphasized that the nutrition status in Palestine has worsened since the year 2000, attributed to losses of jobs, earning and assets. Real per capita income has decreased by half since the beginning of the study period (1999), resulting in 6 out of 10 people falling below the poverty line of US$ 2.10 per day (143).

2. Health management information system in primary health care

A review of the HMIS prior to 1999 reveals lack of reliable data in many areas, leading to an inability to use the available data for rational planning. The unstable political environment contributed substantially to this situation. These findings motivated the MOH to adopt the HMIS strategy in 1999, to focus its efforts on implementing this strategy, and to seek the cooperation of international institutions such as the World Bank. The World Bank insisted on establishing the PHIC, through the HSDP (1999-2005), so as to reach a unified and effective HMIS that can provide a modern, well-equipped and conducive workspace to the HMIS professionals at the MOH. Currently the PHIC is responsible for producing vital statistics, health indicators and health status reports in Palestine (126,127). In Palestine, the clinical information system could contribute managing many difficulties, particularly concerning patients' privacy and control of their information, standardization of electronic health records, cost of adopting information technology, unbalanced financial incentives, and the varying levels of preparation across caregivers (181).

The epidemiological surveillance system which was emphasized as a strategic component for every health care reform (182) has recently shown the effectiveness of its outcomes (183) which contribute to an effective communicable disease control in Palestine (184). The occupational health subsystem has been established and a new software for this system is under development in order to have a reliable updated databank (183). Public Health laboratory, which obtained the International Organization for Standardization

(ISO) certificate, is producing data that are very important for formulating environmental health indicators.
Another achievement of the HMIS strategy was illustrated in the creation of the health data warehouses. This integration is very important to bring together information from various operational systems into a single environment, to avoid generation of duplicated counts and to serve the analytical and decision-making needs for everyday tactical decision-making and long-term strategizing (185). The establishment of the Palestinian health data dictionary has provided users with a useful tool for answering questions such as the following: what information is included in health related databases, how the information will be used, and how the items in the databases relate to each other (186).

The MOH created new systems/subsystems to support the functioning of the PHC; the key issue in this regard was the adopting of a participatory approach during designing these software programs. This was done by a team of "information experts" through adequate involvement of key stakeholders, so as to reflect the needs and practical reality of primary care service providers and managers and to encourage ownership of the systems (187).

Strengths and limitations of the HMIS.
The SWOT analysis, which is an effective method for prospective risk identification (188,189), reveals a promising Palestinian HMIS especially when efforts are made to mitigate the burden of weakness and probable threats. Available personnel skills in health information system could assure the local sustainability and improvement of the system, while the existence of the website could contribute of exchange the experiences on the international level. Availability of resources and effective health management under a clear health policy, in addition to international support to HMIS is expected to overcome weaknesses and threats.

3. Utilization of primary health care services
The final model was able to account for significant variability in primary health care use. About 40% of the variance was accounted for by the model. The relationship between age and the probability of the use health services indicate that there is a difference in the likelihood of making use of the services of the physician, among different age groups, with that older being more likely to have a contact with the health service. The gradient persists when adjusting for cofounders. Our result of strong positive association between age and primary care utilization can be explained by the fact that elderly are more likely to suffer from chronic diseases which need more care, in line with previous studies (131,190). Women are also more frequent users of heath care in several studies (191,192,193,194,195 196) including Arab ones (87) and the adjustment for cofounders in our study indicated non significant association. Early marriage- which predominates in Palestine- and early childbearing are considered a primary factor leading to increase risk of complications of pregnancy and childbirth for women (197), while for men the married status could increase fathers' responsibilities towards securing good living conditions for the family under the bad circumstance that the Palestinians nowadays are living in. This could increase the burden and

contribute to increased stress and its psychosomatic complications that ultimately increase the use of PHC services. In fact, the widowed and the divorced could also increase psychological problems, taking in consideration that the crude divorce rate in Gaza strip is about 1.2/1000 (27). Our finding concords other studies (198,199). The gradient of education disappeared when adjusting for independent variables unlike a previous study (92) which found frequent attenders were more likely to have lower educational status. The contradiction could be due to different culture and settings. The higher educational groups in Gaza Strip are more likely to see a specialist, resulting in decreasing their proportion as heavy users in primary health care centres. A person's labour force status has importance for physician utilization. Our result of the non-employed being associated with high use of primary health care may be explained by bad personal health. This result is in line with previous reports (200,201).

A variety of factors have been identified as the leading causes of poor utilization of PHC services including large family size (202), while in our study there is insignificant positive association. This needs more investigation, taking in consideration the increased family size under the poor economic conditions in the Gaza Strip could increase the utilization for MOH or UNRWA clinic rather than to seek helps from private for profit sectors. The gradient of living conditions persists when adjusting for other factors, indicating that Israeli measurements have had a devastating impact on the economic and psychologic situation and result in increased poverty, frustration and pessimism (203). This status of Palestinian living conditions is in violation to Article 11 of the International Covenant on Economic, Social and Cultural Rights which called for "*right to an adequate standard of living conditions…*"(204). Our finding of the higher powerful locus of control associated with high use of primary health care is in line with the theory which postulates that individuals with a greater internal locus of control tend to use health services less. Whereas persons who believe that health depends on medical care professionals, fate or other persons (powerful others) tend to have a more dependent attitude towards life in general, and tend to use health services more frequently (205). While associated depression and anxiety with an external locus of control could support our findings (206).

The insignificant positive association between PHC utilization and urbanization level indicates that the same geographical conditions apply in both. There is evidence that patients of lower socioeconomic status are least likely to report health seeking behaviours (207). Other studies have shown conflicting results (208,209). In our study, we found similar results to the former one. Higher income (>758US$) showed no association with utilization and this could be explained by the rich people being more likely to seek health care from specialists and the private sectors. Good primary care experience was associated with better self-reported health (210).

The study showed that the higher self rated health, the higher use of primary health care and this is in line with other studies (211, 212). The association between smoking and prevalence of non communicable diseases (148) could

explain the positive association of current smoking and utilization. While an increase in physical activity could contribute to reaching the negative association with utilization. Satisfaction was insignificant positively associated with utilization, although a few studies have demonstrated an association (214).

4. Translating and validating the EUROPEP

The improvement of quality in PHC in Arab countries requires more than political support, administrative support and funding; it also requires research capacity and reliable instruments for evaluating primary care acceptance in the population and primary care quality of care. This is in line with the discussion currently going on in European settings and with research reports reporting on the results of studies carried out by the European General Practice Research Network (EGPRN) and WONCA Europe (214,215). Although there are several instruments and questionnaires that can be used for evaluating PHC services and they have been reported in the literature, EUROPEP was chosen because it is a well tested instrument with implementation in several countries providing information at an international level.

In our study, a high responses rate was obtained and this can be attributed to the fact that recruitment of the subjects took place immediately after visiting the GPs and also the small number of questions, thus avoiding drop outs during the interview. The Arabic language EUROPEP has a higher total response rate than equivalent European studies. The total response rate was reported as being 76.5 % in Turkey (97), 67% in Iceland and 90% in Norway (100). The response rate for each item for the 956 respondents was also excellent when compared to the European response rates reported by other researchers. The response rate for each EUROPEP item in different studies ranges between 71.5% and 98.5% (91). The validation process revealed a satisfactory level for Cronbach's alpha for the Arabic language EUROPEP.

The part of the questionnaire relating to clinical behaviour seemed more reliable than the part related to organization of care, results similar to that of other studies in Europe (91). Nevertheless, a level of 0.60 for Cronbach's alpha or higher is usually accepted (216). The exploratory factor analysis extracted six dimensions covering different aspects of general practice care.

The Arabic language version of EUROPEP as translated and validated in this study is expected to be a practical instrument for evaluation of general practice care in PHC settings particularly from the patient's point of view. Results of the study in Palestine and specifically in the Gaza Strip governorates will be subsequently reported. Testing and using EUROPEP in other Arab countries are recommended.

5. Patients' satisfaction with primary care services provided by physicians

To our knowledge, this is the first study evaluating patient satisfaction by an internationally validated instrument in Gaza Strip with a relatively high response rate, indicating strong intentions for participation. The socio-demographic characteristics of the 956 participants revealed that the mean age

for those consulting PCPs in the Gaza Strip was 37.6 years. This mean age is lower that the mean age of PHC attendees in Europe, which was 50 years of age (91). The lower age in Gaza Strip can be explained by the different population structure between the two communities. As expected, the large majority of patients consulting PCPs were women. This finding is in line with other international studies (196) and may be attributed to the fact that women have different physiology than men, characterized by childbearing.

The study revealed that married persons were consulting more PCPs, a finding that merits further investigation, especially at MOH clinics. The free of charge service system may explain why widowed and divorced patients consulted more UNRWA physicians. In general, Gaza Strip patients were negative about the care they received, which means that medical care did not meet patients' expectations, unlike the case of European patients (91). Physicians' clinical skills, including listening, physical examination and explanation of symptoms, were positively evaluated by patients, while issues on practice management, including waiting time and accessibility were negatively evaluated. This may indicate an organizational problem rather than a professional skills deficit. The poorest rated items in this study were in line with those from previous studies (96,217,218).

Even though there was no statistically different mean percentage of patients' total satisfaction between MOH and UNRWA attendees, when comparing item-by-item, there was a significantly higher mean percentage satisfaction for MOH patients regarding quick relief of symptoms, receiving information about symptoms, helping the patient feel well, explaining the purpose of tests and treatments and getting a suitable appointment. This finding might be explained by the high number of casualties, resulted from the ware situation, encountered by MOH physicians, making them more responsive, informative and cooperative with patients seeking their care. *"Preparing patients for specialist visit"* and *"providing quick services for urgent health problems"* were two items rated higher by UNRWA clinic patients. This can be attributed to emergency preparedness since the UNRWA medical system is characterized by continuous international support. These findings are remarkable in light of the fact that MOH provides fee-for-services PHC through health insurance, while UNRWA provides free of charge PHC for Gaza Strip refugees.

Another interesting finding was relevant to physicians' capacity to help patients deal with emotional problems, ranked as the fifth poorest item. This result is in accordance with findings from another study that physicians in Gaza Strip have difficulty detecting mental health problems and are in need of relevant training (219). On the contrary, similar studies from European countries revealed that the same item received a rating of 85%, 87%, 76%, 71% and 60.2% in Germany, Slovenia, the Netherlands, UK and Turkey respectively (97,99,218,220,221).

Implications on policy and primary care system: Customer satisfaction is an important measure of service quality in medical care systems. From a management perspective, satisfied patients are more likely to maintain a

consistent relationship with a specific provider and follow specific medical regimens and treatment plans. Sources of patient dissatisfaction can be adequately addressed by an organization, thus contributing to the organization's total quality management plan (87,222).

Items in the organization of care dimension received a lower score from Gazean patients, indicative of the need for re-organization to change patients' perceptions of health care differences and inequalities between the two Palestinian regions. Accessibility has been identified as an important priority and national health authorities should undertake certain actions for improving access to PHC sites and services. This study also underlines the importance of patients' point of view in increasing medical staff's awareness about their strengths and weaknesses, thereby contributing to increased responsiveness.

Strengths and limitations

The main strength of this study is the adoption of a multi-faceted research approach that covers several health aspects, while different methodologies performed for each individual aspect have their own strengths and limitations.

Sampling bias seems to have been avoided, since patients from different geographic areas were sought and a large number of patients representative of all patients consulting primary care physicians in PHC settings in the Gaza Strip were involved. The total response of patients to the questionnaire interview was relatively high, indicating good intentions to participate in the present study.

Recall bias may have occurred in self reporting visits to primary health physicians especially among older patients, since older age was significantly associated with underreporting of PHC visits (223). An attempt was made to reduce this by asking for only a six-month recall period. Inter-observer error may have occurred, and an attempt was made to reduce this bias by limiting the number of data collectors/observers to two well-trained people. Also, there may possibly have been an underestimation or overestimation of subjective determinants especially self rated health, whereas the data were collected by interview with patients who reported their perceived of health status rather than using clinical (objective) diagnosis by physician, which are recommended for further studies.

Conclusions and Recommendations

This study revealed the achievements and failures of the national strategy of Palestinian PHC and conveys certain messages for health planners who need to invest in health promotion, family medicine and public health to improve morbidity and mortality. The new plan should focus on non-communicable diseases. Items hazardous to health and that have a negative effect on the environment should become a new subject in the MOH agenda.

The Ministry of Health has mostly achieved HMIS strategy as regards the PHC, through implementation of new databases and establishing a

unified/centralized HMIS. Widening of the implementation of the clinical information system will improve health policy and management in Palestine and improve the primary health services' functioning, effectiveness, efficiency and performance. Efforts to mitigate the threats of the Palestinian HMIS are needed.

The findings of this study revealed a positive association between older age, high economic level, low level of living conditions and low level of healthy lifestyle with high use of PHC. We suggest that an effective health management, based on addressing equity issues and promoting healthy lifestyles in addition to interventions to overcome the instability of political and economic situation may optimize the utilization of PHC.

The Arabic language version of EUROPEP as translated and validated in this study is expected to be a practical instrument for evaluation of general practice care in PHC settings particularly from the patient's point of view.

Palestinian patients expressed overall dissatisfaction with services provided by primary care physicians especially organization of care. Therefore, policy makers and administrators have to put the issue of quality improvement as a priority of their prospective health planning agenda.

Finally, this study can be used as guidance for the policy makers and administrators for prospective health planning in Palestine. They can direct their efforts and allocate resources toward the unachievable objectives of the previous national health plan. This could be done under the umbrella of stable political and economic conditions, which the latter requiring local and international efforts and urgent genuine interventions.

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Appendix A1

Percentage distribution of population by type of locality- Gaza Strip, mid-year 2004 (Source Ref. **130)**

Governorate	locality	Population	%	Locality	Locality No.	proportion
North Gaza	Al Qaraya Al Badawiya	2,501	1.0	rural	1	0.19
	Beit Lahiya	54,385	21.4	urban	1	4.07
	Beit Hanoun	29,400	11.6	urban	1	2.20
	Izbat Beit Hanoun	**6,744**	**2.7**	**rural**	**1**	**0.50**
	Jabalya Camp	**85,363**	**33.6**	**refugee**	**1**	**6.38**
	Jabalya	**75,700**	**29.8**	**urban**	**1**	**5.66**
	Total	**254,093**	**100.0**		**6**	**19.00**
Gaza	Madinat al Awda	549	0.1	rural	1	0.04
	Ash Shati Camp	**81,109**	**17.2**	**refugee**	**1**	**6.07**
	Gaza	**381,247**	**81.0**	**urban**	**1**	**28.51**
	Al Mughraqa	4,723	1.0	rural	1	0.35
	Juhor Ad Dik	**2,977**	**0.6**	**rural**	**1**	**0.22**
	Total	**470,605**	**100.0**		**5**	**35.19**
Mid Zone	**An Nuseirate Camp**	**59,772**	**30.9**	**refugee**	**1**	**4.47**
	Al Bureij Camp	33,654	17.4	refugee	1	2.52
	Az Zawyda	14,365	7.4	urban	1	1.07
	Deir Al Balah Camp	11,137	5.8	refugee	1	0.83
	Al Maghazi Camp	22,531	11.6	refugee	1	1.68
	Deir Al Balah	**46,159**	**23.8**	**urban**	**1**	**3.45**
	Al Musadder	1,707	0.9	rural	1	0.13
	Wadi as Salqa	**4,324**	**2.2**	**rural**	**1**	**0.32**
	Toal	**193,649**	**100.0**		**8**	**14.48**
Kh Younis	Al Qarara	15,696	6.0	urban	1	1.17
	As Sureij	821	0.3	rural	1	0.06
	Khan Younis camp	**45,610**	**17.6**	**refugee**	**1**	**3.41**
	Khan Younis	**121174**	**46.7**	**urban**	**1**	**9.06**
	Bani Suheila	30,406	11.7	urban	1	2.27
	Abasan as Saghira	5,231	2.0	rural	1	0.39
	Absan al Kabira	17,662	6.8	urban	1	1.32
	Qizan an Najjar	3,608	1.4	rural	1	0.27
	Qa al Kharaba	854	0.3	rural	1	0.06
	Qa al Qurein	3,408	1.3	rural	1	0.25
	Khuzaa	**8,967**	**3.5**	**rural**	**1**	**0.67**
	Umm Kameil	1,829	0.7	rural	1	0.14
	Umm al Kilab	927	0.4	rural	1	0.07
	Al Fukhkhari	3,447	1.3	rural	1	0.26
	Total	**259,640**	**100.0**		**14**	**19.42**
Rafah	Al Mawasi	1,310	0.8	rural	1	0.10
	Al Qarya as Suwaydiya	751	0.5	rural	1	0.06
	Tall as Sultan Camp	22,692	14.3	refugee	1	1.70
	Rafah	**65,984**	**41.6**	**urban**	**1**	**4.93**
	Rafah Camp	**55,743**	**35.1**	**refugee**	**1**	**4.17**
	Al Bayuk	5,249	3.3	rural	1	0.39
	Shokat as Sufi	**7,522**	**4.7**	**rural**	**1**	**0.56**
	Total	**159,251**	**100.4**		**7**	**11.91**
	Grant Total	**1,337,238**			**40**	**100.00**

Appendix A2

Definition of locality: urban, rural and refgee camp (Ref 130)

Locality: A permanently inhabited place, which has an independent municipal administration or a permanently inhabited, separated place not included within the formal boundaries of another locality.

Locality type: Localities have been divided into three: urban, rural and camps.

Urban: Any localities whose population amounts to 10,000 persons or more. This applies to all governorates/districts centers regardless of their size. Besides, it refers to all localities whose population vary from 4,000 to 9,999 persons provided they have, at least, four of the following elements: public electricity network, public water network, post office, health center with a full-time physicians and a school offering a general secondary education certificate.

Rural: Any locality whose population is less than 4000 persons or whose population varies from 4000 to 9,999 persons but lacking four of the aforementioned elements.

Camp: It refers to any locality referred to as a refugee camp and administrated by the United Nations Refugees and Works Agency (UNRWA).

Appendix B1

General Characteristics of Patients Visiting Primary Health care

SN: |__| |__| |__| |__| Date : dd/mm/yy |_|_|/|_|_|/|_|_|

I. Background Information

|__| Q1.1 The Government : |_1_| North |_2_| Gaza |_3_| Middle zone |_4_| Khan Younis |_5_| Rafah

|__| Q1.2 The area: |_1_| Urban |_2_| Village |_3_| Camp

Q1.3. The Name of PHC Centers

……

|__| Q1.4 The PHC Provider |_1_| MOH |_2_| UNRWA

|__|1.5 Age (Years)

II. Socio-Economic-Status (SES) and Demographic Items

|__| Q2.1 The number of the household members.

|__| Q2.2 The number of the household rooms.

|__| Q2.3 Year of Education:

(1) Illiterate (2) Primary (3) Preparatory (4) Sec. School (5) Dip, University

|__| Q2.4 Do you have Work? (1) Yes (0) No

Q2.5 If yes the kind of the work----------

|__| Q2.6 Please what is the monthly income of your family?

III. Life events during the last 12 months

|_| Q3.1 Do you exposed or suffered from financial problems? (1) Ye (0) No

|_| Q3.2 Do you exposed or suffered from psychological problems (1) Yes (0) No

IV. Prevalence of psycho-social problems

|_| Q4.1 Do you suffered from poor living conditions? (1)Yes (0) No

V. Life Style Aspects

|__| Q5.1 Do you smoke? (1) Yes (0) No

|__| Q5.2 if yes, (1) Smoker (2) ex-smoker

|__| Q5.3 Do you practice sports? (1) Yes (0) No

|__| Q5.4 if yes, what the types of sport you are practicing?

1…… 2 ……

2…… 3 ……

5…… 6……

VI. Own Assessment of Health by Patient

Your assessment of your health is:

|_| Q 6.1 , *(1) poor, (3) average, (4) good, (5) very good*

VII. Use of General Practice care

|_____| Q7.1 Number of visits reported by patients within 6-month period *(Including this Visit)*

Appendix B2

الصفات العامة للمترددين على الطبيب العام فى الرعاية الصحية الأولية في قطاع غزة

- |__||__||__| الرقم المتسلسل التاريخ : / / 200
- |__| الموافقة على إجراء المقابلة |_1_| نعم |_0_| لا

الأول: معلومات أساسية

1- |__| المحافظة: (1) الشمال (2) غزة (3) الوسطى (4) خان يونس (5) رفح
2- |__| المنطقة (1) مدينة (2) قرية (3) مخيم لاجئين
3- |__| مقدم الرعاية (1) حكومة (2) وكالة غوث وتشغيل اللاجئين.
4- |__| اسم العيادة .....
5- |__| العمر (بالسنوات) .
6- |__| الحالة الاجتماعية (1) أعزب (2) متزوج (3) مطلق (4) أرمل

الثاني: الظروف الاقتصادية الاجتماعية والديموغرافية

1- |__| ما عدد أفراد عائلتك ؟ 1.1 |__| ما عدد غرف منزلك ؟
2 - |__| التعليم: (0) أمي (1) ابتدائي (2) اعدادي (3) ثانوي (4) دبلوم (5) جامعي
3- |__| هل لديك عمل (1) نعم (0) لا
3- في حالة نعم، ما هي طبيعة العمل ؟ .....
5- |_____| في حالة نعم ، ما الدخل الشهري للاسرة ؟

الثالث : أحداث حياتية خلال العام السابق:

1- |__| هل عانيت او تعرضت لمشاكل اقتصادية (1) نعم (0) لا
2- هل عانيت او تعرضت لمشاكل نفسية؟ (1) نعم (0) لا

الرابع: انتشار مشاكل اجتماعية نفسية

1- |__| هل عنيت او تعانى من ظروف حياتية صعبة؟ (1) نعم (0) لا

الخامس: الأنماط الحياتية

1- |__| هل أنت مدخن؟ (1) نعم (0) لا ، 1.1. اذا كان نعم |__| ألان |__| سابقا
2- |__| ما عدد سنوات التدخين ؟ 2.1 |__| كم سيجارة تدخن في اليوم ؟
3- |__| هل تمارس الرياضة ؟ (نعم) (0) لا
4- إذا كانت الإجابة نعم، فما أنواعها _____

السادس: تقييم ذاتي للصحة بواسطة المريض

1- |__| إذا أردت أن تقيم صحتك حيث (1) سيئ ، (2) متوسط ، (3) جيد، (4) جيد جدا

السابع : استخدام الرعاية الصحية الأولية

- كم مرة زرت العيادة أخر مرة بما فيها هذه الزيارة ؟ عدد المرات
1- |__| من 1-6 شهور |_____|

هل لك أي ملاحظات أو اقتراحات لتطوير جودة هذا المركز الصحي ؟

اسم جامع البيانات	التوقيع	التاريخ
----------	---------	----------

شاكرا لكم حسن تعاونكم ، متمنيا لكم عمرا مديدا تقضونه بالصحة والسعادة ،
ودمتم ذخرا لهذا الوطن

الباحث تيسير أبو مراد

Appendix C

Multidirectional Health Locus of Control (Form A)

Instructions: Each item below is a belief statement about your medical condition with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (5). For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement. The more you agree with a statement, the higher will be the number you circle. The more you disagree with a statement; the lower will be the number you circle. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

1=STRONGLY DISAGREE, 2=DISAGREE 3=MODERATELY AGREE, 4= AGREE , 5=STRONGLY AGREE

التحكم الذاتي الصحي : **المقياس** (1) غير موافق بشدة (2) غير موافق (3) لا اعلم (4) موافق (5) موافق بشدة

Q1 If I get sick, it is my own behavior which determines how soon I get well again. اذا مرضت فان سلوكى يحدد مدى سرعة استرداد صحتى ثانية .	1	2	3	4	5
Q2 No matter what I do, if I am going to get sick, I will get sick. لا يهم ماالذى افعله ان كنت سأمرض فسوف أمرض.	1	2	3	4	5
Q3 Having regular contact with my physician is the best way for me to avoid illness. الطريقة المثلى لتجنب المرض هو زيارة الطبيب العام بانتظام .	1	2	3	4	5
Q4 Most things that affect my health happen to me by accident. معظم الاشياء التى تؤثر على صحتى تحدث لى نتيجة الصدفة.	1	2	3	4	5
Q5 Whenever I don't feel well, I should consult a medically trained professional. عندما لاأشعر بصحة جيدة يجب ان أستشير الاخصائى الطبى المتمرس.	1	2	3	4	5
Q6 I am in control of my health. أنا أتحكم بصحتى.	1	2	3	4	5
Q7 My family has a lot to do with my becoming sick or staying healthy. عائلتى لديها الكثير لتفعله اذا ما اصبحت مريضا او فى حالة بقائى معافى صحيا.	1	2	3	4	5
Q8 When I get sick, I am to blame. عندما أمرض فأنا الملام .	1	2	3	4	5
Q9 Luck plays a big part in determining how soon I will recover from my illness. يلعب الحظ دورا كبيرا فى تحديد سرعة شفائى من مرضى .	1	2	3	4	5
Q10 Health professionals control my health..المهنيين الصحيين هم من يضبطون صحتى	1	2	3	4	5
Q11 My good health is largely a matter of good fortune. صحتي الجيدة هي مسألة حسن حظ الى حد كبير .	1	2	3	4	5
Q12 The main thing which affects my health is what I myself do. ان الشيئ الاساسى الذى يؤثر على صحتى هو ما الذى افعله.	1	2	3	4	5
Q13 If I take care of myself, I can avoid illness. عندما أعتنى بنفسى استطيع تجنب المرض.	1	2	3	4	5
Q14 Whenever I recover from an illness, it's usually because other people (i.e. doctors, nurses, family, friends) have been taking good care of me. عندما أشفى من مرض، عادة يكون ذلك بفضل الاخرين (الطبيب، الممرض، العائلة، الاصدقاء) الذين يقدمون الرعاية الجيدة لى.	1	2	3	4	5
Q15 No matter what I do, I 'm likely to get sick. ليس للذى افعله اهمية فالارجح ان اصبح مريضا.	1	2	3	4	5
Q16 If it's meant to be, I will stay healthy. إن قدر لى سأكون بصحة جيدة.	1	2	3	4	5
Q17 If I take the right actions, I can stay healthy. اذا تصرفت بشكل صحيح أستطيع البقاء معافى صحيا .	1	2	3	4	5
Q18 Regarding my health, I can only do what my doctor tells me to do. فيما يخص صحتي أستطيع فقط عمل ما يبلغني به الطبيب.	1	2	3	4	5

SUBSCALE	ITEMS
Internal	1, 6, 8, 12, 13, 17
Chance	2, 4, 9, 11, 15, 16
Powerful Others	3, 5, 7, 10, 14, 18

The score on each subscale is the sum of the values circled for each item on the subscale (i.e., where 1 = "strongly disagree" and 5 = "strongly agree"). No items need to be reversed before summing. All of the subscales are independent of one another. (for more details:[http://www.vanderbilt.edu/nursing/kwallston/mhlcscales.htm]).

Appendix D

Method used for of translation and culture adaptation into Arabic, the EUROPEP and Multidimensional Health Locus of Control Instruments

Procedure	Carried out by	qualification/position
1- Forward Translation	1. Mr. Tayser Abu Mourd	MPH, Ph.D. candidate, School of Medicine, Crete University, Greece.
	2. Dr. Suzan Shushaa	(MD. MB. Bch, PH.D., PDD), Assist. Dean of Faculty of Public Health- Al-Quds University-Palestine- Director of Al-Quds University Postgraduate Programs-Gaza Strip, Palestine.
	3. Dr. Olfat Shaat	MPH, MD, Deputy director of Khan Younis Governorate , Ministry of Health, PHC-Palestine
2- Backward Translation	1. Dr. Mahmoud Daher	MPH, BA of Nursing , WHO representative Office, Gaza.
	2. Dr. Nisreen Abu Middan	MPH , Tulane School of Public Health and Tropical Medicine, New Orleans, USA. Working with MARAM project funded By USAID.
3. Committee Review	1. Dr. Mohmed Besaiso,	MD, MPH, director of coordination and follow-up. College of public health. Al-Quds University.
	2. Mr. Tayser Abu Mourad	MPH. PH.D. Candidate
	3. Dr. Suzanne Shashaa	(MB. MD. Bch, PH.D., PDD), Assist. Dean of Faculty of Public Health- Al-Quds University-Palestine- Director of Al-Quds University Postgraduate Programs-Gaza Strip, Palestine.
	4. Prof. Abed Al Aziz Thabet	Ph.D Assistant Prof. of Community Mental Health, lecturer at school of public health, Al-Quds University, Palestine.
	5. Dr. Samir Kuhail	PH.D. Researcher, MPH, MD, Deputy Director of health research directorate, Ministry of health, Palestinian National Authority
4. Validity	- 12 experts evaluated the content validity (**see Appendix E**).	

Appendix E

List of experts who evaluate the Content Validity the instruments

Name of experts	Qualification/position
1- Dr. Basam Abu Hamed	Ph.D. Assistant Prof. of Educational Management from UK, School of Public Health, Al-Quds University.
2- Prof. Yehia Abed	Ph.D. Prof. of Epidemiology, USA. Head of MARAM Project funded by USAID.
3- Prof. Abedel Hamid Afana	Ph.D. Assistant Prof. of Mental Health from Norway, Director of Training Education at Gaza Community Mental Health Program.
4 - Dr. Suzan Shushaa	(MB. Bch, PH.D., PDD , Assist. Dean of Faculty of Public Health- Al-Quds University-Palestine- Director of Al-Quds University Postgraduate Programs- Gaza Strip, Palestine.
5- Dr. Abed El Jabar Al Tibi	Master of Primary health care and General director of PHC at Ministry of Health.
6- Dr. Abed Al Rahman Barqawi	MPH, and General director of Ministry of Health.
7. Mr. Fayeq Al Madhoun	MPH and the head of environmental unite at the Gaza Governorate.
8- Dr. Riad Awad	MPH, Palestinian Health Information Center (PHIC) in Ministry of Health (MOH).
9- Dr. Ayob Al-Alem	MPH/Chief Field Health Program UNRWA, Gaza.
10- Mrs. Lubna Al- Sharif	MPH, Consultant of quality Management at Ministry of Health, Gaza-Palestine.
11- Mr. Hisham Al Shinbarry	Master of Physical education/ Lecturer at Al-AQSA University- Gaza.
12- Prof. Abed Al Aziz Thabet	Ph.D .Assistant Prof. of Community Mental Health from UK, lecturer at school of public health, Al-Quds University, Palestine.

Appendix F1

EUROPEP

What is your opinion of your general practitioner and the medical services provided.

Introduction

We believe that you, the patient are very important participant in health care. We want to take your opinion into account in order to improve the quality of primary care services. Your general practitioner has agreed to give meet you to fill in this questionnaire. We would be very grateful if you would provide us with your opinion of each item. In this questionnaire, we ask you to rate the quality of care that you have received over the 12 months from the general practitioner and the primary care centers that you usually visit (that may not be one you have visited today).
The information you give will be treated confidentially.

What is your opinion about the general practice care in the PHC centers over the last 12 months?

Scale: (1) Poor, (2) Bad, (3) average (4), Good, (5) Excellent →→→→	***Poor***					***Excellent***
Items	1	2	3	4	**5**	**0***
Q1 Making you feel you had time during consultations						
Q2 Interest in your personnel situation						
Q3 Making it easy for you to tell him or her about your problems						
Q4 Involving you in decisions about your medical care						
Q5 Listening to you						
Q6 Keeping your records and data confidential						
Q7 Quick relief of your symptoms						
Q8 Helping you to feel well. So that you can perform your normal daily activities						
Q9 Thoroughness						
Q10 Physical examination of you						
Q11 Offering you services for preventing disease (e.g. screening, health checks, immunizations)						
Q12 Explaining the purpose of the tests and treatments						
Q13 Telling you what you wanted to know about your symptoms and/or illness						
Q14 Helping you deal with emotional problems related to your health status						
Q15 Helping you understand the importance of the following his or her advice						
Q16 Knowing what he had done or told you during contacts						
Q17 Preparing you for what to expect from specialist or hospital care						
Q18 The helpfulness of the staff (other than the doctor)						
Q19 Getting an appointment suite to you						
Q20 Getting through to the clinic on the phone						
Q21 being able to speak to the GP on the telephone						
Q22 Waiting time in the waiting room						
Q23 Providing quick services for urgent health problems						

Appendix F2

EUROPEP

ما هو رأيك في طبيبك العام و العيادة ؟

مقدمة

نحن نعتقد بأن مشاركتك كمريض تعتبر مهمة جدا في الرعاية الصحية. سنأخذ برأيك في الاعتبار وذلك لتحسين جودة الرعاية في العيادة. طبيبك العام وافق أن تتم مقابلت لتعبئة هذه الاستبيانة. في هذه الاستبيانة نطلب منك ترتيب جودة الرعاية التي تلقيتها خلال 12 شهرا الماضية من الطبيب العام والعيادة التي عادة تزورها (لربما ليست هذه التي زرتها اليوم).
المعلومات التي سوف تزودنا بها سوف تعامل بسرية. برجاء اعتبار العيادة والطبيب العام الذي عادة تراه أو رايته خلال 12 شهرا الماضية. نريد منك أن تقييم هذه العيادة خاصة والطبيب العام خلال 12 شهرا الماضية.
ما اسم طبيبك العام؟ : .....

ما وجه نظرك في الطبيب العام والعيادة خلال السنة الأخيرة						
سيئ جدا ..... ممتاز | غير مطابق/ لاعلاقة له						
	1	2	3	4	5	0
___ **1.** يجعلك تشعر بأنك أخذت الوقت الكافي في الاستشارة						
___ **2.** الاهتمام بوضعك الشخصي						
___ **3.** يسهل عليك إخباره عن مشاكلك						
___ **4.** يشركك في اتخاذ القرارات التي تخص رعايتك الطبية						
___ **5.** يستمع إليك						
___ **6.** يحافظ على سرية سجلاتك وبياناتك						
___ **7.** السرعة في إراحتك من الأعراض						
___ **8.** يساعدك على الشعور بالتحسن الذي يجعلك تستطيع القيام بنشاطاتك اليومية العادية						
___ **9.** الدقة والشمولية						
___ **10.** فحصك الجسماني						
___ **11.** يقدم لك خدمات تتعلق بالوقاية من الأمراض (فحص شامل- فحوصات – تطعيمات)						
___ **12.** يشرح الغرض من الفحوصات والعلاج						
___ **13.** يخبرك عما تريد معرفته حول الأعراض أو الأمراض						
___ **14.** يساعدك في التعامل مع المشاكل الانفعالية /العاطفية المتعلقة بوضعك الصحي						
___ **15.** يساعدك في فهم أهمية اتباع نصائحه/ها						
___ **16.** معرفة ماذا فعل أو تحدث لك أثناء اللقاءات						
___ **17.** يعدك لما تتوقع من رعاية الأخصائي أو المستشفى						
___ **18.** المساعدة الكاملة من الطاقم (عدا الطبيب)						
___ **19.** إعطاءك الموعد الذي يناسبك						
___ **20.** الوصول للعيادة عبر التليفون						
___ **21.** القدرة على التحدث مع الطبيب العام عبر الهاتف						
___ **22.** زمن الانتظار في غرفة الانتظار						
___ **23.** تقديم خدمات سريعة للمشاكل الصحية العاجلة						

Appendix G

Palestinian National Authority
Ministry of Health
Helsinki Committee

السلطة الوطنية الفلسطينية
وزارة الصحة
لجنة هيلسنكى

Date 21/1/2003

Mr. Tayser Abu Mourad

I would like to inform you that the committee has discussed your application about:

Demand for the Primary Health Care in Gaza Strip-Palestine

In its meeting on December 2003 and decided the Following:

To approve the above mention research study.

Member Member

Conditions:
.:. It is necessary to notify the committee in any change in the admitted study protocol.
.:. The committee a appreciate receiving one copy of your final research when it is completed.

عضو عضو Chairperson

Ministry of Health Helsinki Committee

Appendix H

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE

ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ
FACULTY OF MEDICINE

Τ.Θ. 1393, Ηράκλειο Κρήτη

P.O Box 1393, Heraklion Crete, Greece

August 15. 2005

To: Dr. Ali Queder
General Director of Primary Health Care Gaza Strip

Subject: Ph.D. Research entitle
"Demand for primary health care in the Gaza Strip-Palestine"

Dear Dr. Queder
I would like to inform you that I am doing my Ph.D study in the filed of Public Health at Department of Social Medicine - School of Medicine, Crete University-Greece). This study is focusing on the primary health care of rural, urban and refugee camp populations of Gaza Strip. The aim of this study is to assess health demands (reason for encounters) for primary health care and to evaluate the objective and the subjective determinants of health and health care utilization for PHC attendees and their level of satisfaction with the provided health care. The result of this study may help in improving the effectiveness of PHC as well as to figure out the main factors that affect the Palestinian health status especially the users of PHC for both MOH and UNRWA in the main different geographical distribution of Gaza Strip.

The study will conducted in PHC centers of MOH and UNRWA (enclosed the list of PHC centers). Data will be collected through a meeting interview and the special questionnaire will be used as a tool. One-week investigation will be carried out in each proposed primary health center. Therefore, I seek your approval to conduct this study in the following MOH clinics:

1- **Shuhada Jabalia**	**2- Izbat Beit Hanoun**	**3- AI-Rimal**
4- Johr AI-Dik	**5-Deir Al Balah**	**6- Wadi Al Salqa**
7- Kuzaah	**8- Shuhada Khanyounis**	**9- AI-Shoka**
10- Shuhada Rafah		

Thank you in advance for your kind cooperation

Approval

Ph.D. Researcher
Tayser Abu Mourad

Appendix I

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE
ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ
FACULTY OF MEDICINE
Τ.Θ. 1393, Ηράκλειο Κρήτη
P.O Box 1393, Heraklion Crete, Greece

UNIVERSITY OF CRETE
FACULTY OF MEDICINE
DEPARTMENT OF SOCIAL MEDICINE

Date: August 15. 2005

To: Dr. Ayob AI-Alem
Chief Field Health Program UNRWA- Gaza

Subject: Ph.D. Research entitle *"Demand for primary health care in the Gaza Strip-Palestine"*

Dear Dr. AI-Alem
I would like to inform you that I am doing my PhD study in the filed of Public Health at Department of Social Medicine - School of Medicine, Crete University-Greece). This study is focusing on the primary health care of rural, urban and refugee camp populations of Gaza Strip. The aim of this study is to assess health demands (reason for encounters) for primary health care and to evaluate the objective and the subjective determinants of health and health care utilization for PHC attendees and their level of satisfaction with the provided health care. The result of this study may help in improving the effectiveness of PHC as well as to figure out the main factors that affect the Palestinian health status especially the users of PHC for both MOH and UNRWA in the main different geographical distribution of Gaza Strip.

The study will conducted in PHC centers of MOH and UNRWA (enclosed the list of PHC centers). Data will be collected through a meeting interview and the special questionnaire will be used as a tool. One week investigation will be carried out in each proposed primary health center. Therefore, I seek your approval to conduct this study in the following UNRWA clinics

1 - Jabalia.
2- Rima!.
3- Nuseirat.
4- Khan Younis
5- Rafah

Dr. Amna Shurbasi
D / Chief Field Health Programme
UNRWA - GAZA

Approved
A.D
26/9/05

Thank you in advance for your kind cooperation

Ph.D. Researcher
Tayser Abu Mourad

Appendix J1

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE

ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ
FACULTY OF MEDICINE

Τ.Θ. 1393, Ηράκλειο Κρήτη

P.O Box 1393, Heraklion Crete, Greece

Consent letter

Palestinian Primary health Care:

Strategy, Utilization and Patients' Satisfaction

Dear client:
We will highly appreciate your participation in this study (Ph.D. Thesis in social health (Department of social medicine – School of Medicine, Crete University). This questionnaire is a tool for data collection. This study will focus on the primary health care patients in the Gaza Strip with the aim of assessing the determinants of health and PHC primary health care utilization and level of satisfaction with this care. The result of this study may help in improving the effectiveness of PHC and will as well as to figure out the main factors that affect the Palestinian health status especially the users of PHC in the main different geographical distribution of Gaza Strip. We are emphasizing that the confidentiality will be provided. Filling the questionnaire takes about 20 minutes and you are free if you want to withdrawal from the interview during any time of the meeting. Please answer the questions according to your feeling. There is no Right or Wrong answers. Even though, I welcome your participation. Take in your consideration that your not participation in this study will not affect the health care might you need in future.

In order to make this research useful for analyses, about 1067 patients will be asked to answer the questions relevant for this research. This means that your answers are very useful for this analysis, but because only groups of patients will be analyzed concerning their experience and opinions, nowhere will be found any relation in this analysis between YOUR answers and YOUR problems or what ever. You will just be treated as a part of a bigger group.

Ph.D. Researcher
Tayser Abu Mourad

Appendix J2

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE
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بسم الله الرحمن الرحيم

أخي العزيز / أختي العزيزة

أقوم وكجزء من متطلبات انهاء دراستى للحصول على الدكتوراه في الصحة العامة فى جامعة كريت – قسم صحة المجتمع فى اليونان بتنفيذ دراسة تستهدف المترددين على عيادات الرعاية الصحية فى قطاع غزة.

تهدف هذه الدراسة للتعرف على المشاكل الصحية التى يعانى منها المترددون على عيادات الرعاية الصحية والمحددات الصحية واستخدام الرعاية الصحية الأولية، وتشمل أيضا تقييم لمدى رضى المرضى عن مقدمي خدمات الرعاية الصحية الأولية بشكل عامل والطبيب العام بشكل خاص.

وسيستفادد من نتائج هذه الدراسة لتحسين جودة الرعاية الصحية الأولية وتحديد أهم العوامل التي تؤثر على صحة المواطنين المترددين على عيادات الرعاية الصحية الأولية في قطاع غزة لوضع حلول مناسبة للتخلص منها.

شكرا لكم حسن تعاونكم معنا

الباحث
تيسير ابو مراد

Appendix K

Top ten Leading-Cause of Death (2000-2003), Palestine

Rank	Year **2000**	%	Year **2001**	%	Year **2002**	%	Year **2003**	%
1	**Heart diseases**	**20.0**	**Heart diseases**	**21.0**	**Heart diseases**	**19.4**	**Heart diseases**	**20.1**
2	CVAD	10.7	Neoplasm	10.5	Accidents	12.5	CVAD	11.1
3	Neoplasm	9.3	Hypertension	10.2	CPP	11.7	CPP	9.7
4	Hypertension	7.6	Accidents	7.8	CVAD	9.0	Neoplasm	9.0
5	Senility	7.4	CVAD	6.7	Neoplasm	8.2	Accidents	8.8
6	CPP	5.6	CPP	6.4	Hypertension	6.0	Senility	5.7
7	Accidents	5.1	Senility	6.3	Senility	5.1	Hypertension	4.9
8	PRD	4.5	Diabetes	5.7	Diabetes	4.9	PRD	4.8
9	Diabetes	3.8	PRD	4.7	Infectious diseases*	3.8	Diabetes	4.1
10	CM	3.1	CM	4.4	CM	3.6	Renal failure	3.4

CBR: Crude Birth Rate
CDR: Crude Death Rate
CM: Congenital Malformation
CPP: Condition of the Perinatal Period
CVAD: Cerebrovascular Disease
GS: Gaza Strip
IMR: Infant Mortality Rate
LE: Life expectancy
PRD: Pneumonia and Respiratory Diseases
WB: West Bank

***** Infectious diseases include septicemia (1.7%), diarrhea and gastroenteritis (0.2%), meningococcal infection (0.2%), and other infectious disease (1.7%).

Appendix L

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TAYSER ABU MOURAD | Demand for Primary Health Care in the Gaza Strip

On-going research indicates that health and disease are not equally distributed and may be affected by social as well as environmental factors. In his doctoral research, Tayser Abu Mourad will investigate these factors and their impact on primary care in rural, urban, and refugee camp populations in the Gaza Strip. Among the things that affect health and health care in Gaza is the damaged commercial and social infrastructure that limits access to food, water, and proper sanitation.

Lifestyle factors, the physical and social environment, economic status, and access to health care can all affect health, says Abu Mourad. "Evidence of the inverse relationship between socioeconomic indices and environmental risk factors is documented," he claims. However, research shows that there are also subjective determinants to health care and health care consumption: "Those patients who feel more ill or more vulnerable to the threats of bad health have a lower locus of control concerning those threats and tend to generate higher health care consumption."

The situation in the Gaza Strip—with its damaged commercial and social infrastructure and vulnerable supply of even the most basic needs, such as food and water—has seriously exacerbated public health issues. Abu Mourad believes that his research into the connections between these factors and health will be useful in creating policies that will affect the overall health of the population.

In order to establish the correlation between the many variables at play, Abu Mourad's study will sample 1067 visitors to 15 general health care centers serving rural, urban, and refugee camp residents in the Gaza Strip over a four-month period. The population sample will be distributed among the five governorates, based on their populations. Exit interviews with patients will be conducted on randomly selected, consenting patients. Through his research he hopes to:

- Discuss to what extent the primary health care objectives, adopted by the national strategic health plan 1999-2003, have been achieved, with a focus on the areas where improvement is still needed;
- Investigate both why people seek out primary health care and the outcome/diagnosis from those visits;
- Evaluate the demographics of those seeking primary health care (demographic, social, economic and environmental conditions); and
- Determine the types of services patients receive from their general or family practitioners.

Another important aspect of his study will be to measure the patients' general opinions and level of satisfaction with their general practitioners/healthcare providers. "In most developing countries, it is rarely taken into account how local people explain illness, seek advice, or use traditional healing methods. The emphasis has been on hospitals and curative care rather than on trying to address local health needs equitably and effectively." For that reason, asking the opinion of those receiving services is becoming more important to determine how and how well health care services are being provided. Additionally, Abu Mourad believes focusing public health research exclusively on issues of technology may not adequately address the needs of certain populations, leaving a gap that his research hopes to fill. Ultimately, he feels his research could redirect the delivery of health care toward an evidence-based practice that takes into consideration the health status of people living under extremely difficult circumstances, such as those in the Gaza Strip.

Abu Mourad is a doctoral candidate in public health at the Department of Social Medicine at the University of Crete. He received his M.P.H. from the School of Public Health at Al-Quds University. In addition, Abu Mourad has been a consultant for the Environmental Health Education Awareness Program of the Palestine Save the Children Foundation since 2001, and the head of the Information Department of Health Survey at the Ministry of Health since 2004.

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PALESTINIAN AMERICAN RESEARCH CENTER (PARC)
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N.B. Corrections of last hope: Determine the patients characteristics associated with frequent use of primary health care.

Original Publications

PALESTINIAN PRIMARY HEALTH CARE IN LIGHT OF THE NATIONAL STRATEGIC HEALTH PLAN 1999- 2003*

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ABSTRACT

Background: in 1994 the Palestinian health authority took over the responsibility for primary health care (PHC) in Gaza Strip and West Bank. **Aim:** This paper reports on the Palestinian National Strategic Health Plan (PNSHP 1999-2003) and discusses to what extent PHC objectives have been achieved while focusing on areas where improvement is still needed.

Methods: This is a descriptive study using content analysis with a retrospective review of data gathered from the PHC strategy and other related reports and publications.

Findings: Crude death rate and total fertility rate were improved, while, there is an increase of infant mortality rate. Heart diseases were the first leading cause of death in Palestine. Acceptable vaccination coverage has been mostly achieved especially for tetanus, diphtheria, measles and polio. There are certain concerns regarding water supply and other sanitary conditions, a notable increase of the incidence of vector-borne diseases, especially *Cutaneous Leishmaniasis* in West Bank, and mental health is getting worse at the end of the study period.

Conclusions: Certain health promotion and environmental health actions should be urgently undertaken by the Palestinian health care services to cope with environmental and sanitary conditions and further improve the Palestinian people health status regarding communicable and non communicable diseases. Health research and surveys are insufficient and should be carried out regularly. The main barriers against the achievement of PHC strategy were the lack of follow-up implementation due to political and socioeconomic instability. There is an urgent need for international intervention and support.

Keywords: *Primary Health Care, STDs, Gaza Strip, West Bank, Palestinian National Strategic Health Plan.*

Introduction

The Palestinian National Authority (PNA) consists of two separated provinces, Gaza Strip (GS) and West Bank (WB). The Gaza Strip population has been estimated to be 1,370,345 for the year 2003, with two thirds of residents mainly concentrated in eight refugee camps, while the population of West Bank has been estimated to be 2,367,550 (1). Four main types of providers offer health services to the Palestinians: The Ministry of Health (MOH), the United Nation for Relief and Works Agency (UNRWA), the Non-Governmental Organizations (NGOs) and the private–for-profit sector. The health care system is structured in PHC centers, specialized clinics and other health care facilities (2). Structured PHC was introduced in Palestine in 1994 with the aim of adopting the eight components of the Alma-Ata model (3). Those components included: immunization against major infectious diseases, maternal and child health**,** appropriate treatment of common diseases and injuries, adequate supply of safe water and adequate sanitation, education concerning prevailing health problems and methods prevention and control of local endemic diseases and provision of essential drugs (4). In 1994, the national health plan emphasized making PHC available and accessible for all people and encouraging the community to promote, achieve, and maintain optimum health for all residents through the provision of PHC services (4). For improving the health status of Palestinian people, in 1999 the MOH adopted a comprehensive PHC strategy (5). By the end of 2003, MOH was providing comprehensive PHC services throughout 391 centers (54 in GS; 337 in WB) and employed 30% of the workforces in the PHC system (6). To our knowledge, there are no reports or publications addressing

issues of effectiveness of Palestinian PHC, thus it was interesting to evaluate to what extent PHC objectives have been achieved and to explore areas of potential improvement. Thie paper reports on achievements and discusses the prospects of Palestinian PHC.

The objectives of the study are:

1. To assess emphasis on primary health care within the content of PNSHP 1999-2003.

2. To illustrate the trend of demographic/health status indicators for the period 1999-2003.

3. To compare operationalized PHC indicators between the beginning and the end of the study period (1999-2003).

Methods

This is a descriptive study using a retrospective review of data on the PHC from 1999-2003.

Data collection

A. Content analysis: content analysis of the PNSHP 1999-2003 (5) was used (Table 1). This analysis involved the systematic identification, linking and counting of specific characteristics, in order to compare categories and to infer from the data. This technique involves categorizing data to compare and to produce counts of the frequency with which words, phrases and themes occur (7-8). This analysis explored areas of focus for each component mentioned in the PHC strategy (Table 2). Health indicators are variables that help to measure changes and facilitate concise, comprehensive and balanced judgments about health conditions (9), were employed in this study. Besides the

demographic/health status indicators (Tables 3.1 & 3.2), forty-one indicators were operationalized based on PHC components & area of focus (Table 4).

B. Literature review: MOH annual reports (2,6, 10-13) generally reflect data from one to two years or more prior to their publication. Other data related to demographic and environmental indicators were obtained from Palestinian Central Bureau of Statistics, PCBS (1, 14-15).

A number of adopted health indicators are published by the Eastern Mediterranean Regional Office (EMRO)-World Health Organization (WHO) (16) (Tables 5, 6). Data on demography, environment, vital statistics, mortality and vaccination coverage are reflected in these indicators. **Box 1** summarizes definitions and calculations (17-18).

Statistical Analysis

Frequencies were used for content analysis of the PNSHP 1999-2003. Difference percent for each health indicator was calculated as follows: *[(data from the end of the study period- data from the beginning of this period)/ data from the beginning of this period]*100*; positive means increase, negative means decrease. Difference of some health indicators was not calculated because initial data were not available or were zero. Analysis of Variance (ANOVA) was performed to test the variation of vaccination. SPSS software Version 8 was used for data analysis.

Results

The number of PHC centers increased by 14.7% (GS 38.5% & WB 11.6%) between 1999 to 2003. The population per PHC center in WB is lower than in GS (7,025 versus 25,377). Visits to general practitioners (GPs) per person per

year increased from 1.3 in 1999 to 1.5 in 2003 in GS and from 0.69 in 1999 to 0.87 in 2003 in WB; an increase by 15.4% and 26.1% for GS and WB respectively.

The primary health care strategy

The current status of PHC strategy and the population's health status are reported in this paper. Content analysis revealed that health promotion and environmental health compose the highest content of the PHC chapter with 18.2% and 16.4% respectively (**Table 1**). The areas of focus for each PHC component are listed in **Table 2.**

Demographic/health status

Table 3.1 presents demographic/health indicator trends during the study period. At the end of this period, crude birth rate (CBR), crude death rate (CDR) and total fertility rate (TFR)) decreased by 17.1%, 0.6%, and 11.8% respectively . In the same period the total population size, infant mortality rate (IMR) and life expectancy (LE) increased by 20.4%, 8.6% and 0.80% respectively. Population size and IMR were increased more in the GS, while CBR, CDR, and TFR decreased more in the WB (**Table 3.2**). Heart diseases were found to be the first leading cause of death and accounted for almost one-fifth of the total mortality in Palestine.

Target strategies of primary health care

Table 4 summarizes the targets of the 1999 PHC strategy achieved by the year 2003.

Health promotion and education: cause specific mortality rate (CSMR) per 100,000 populations decreased by 13.2% for all heart diseases (AHD), 6.5% for

stroke and 20.8% for lung cancer. The CSMR of breast cancer per 100,000 females decreased by 16.7%. Prevalence of smoking among individuals aged more than ten years decreased by 18.6%. The incidence rate per 100,000 populations of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) decreased by 64.3%, while the incidence of sexual transmitted disease (STDs) increased by 65.5%. Regarding alcohol consumption, the figures were neither available at the beginning nor at the end of the study period.

Women's Health: Maternal mortality ratio (MMR) per 100,000 live births and the prevalence of anaemia among women decreased by 66.0% and 40.9% respectively. The number of governmental family planning centers, percentage of married women used contraceptive and proportion of deliveries attended by trained personnel increased by 46.3%, 13.7% and 0.4% respectively. The percentage of pregnant women attended by governmental trained personnel increased by 19.8% and 21.6% for GS and WB respectively (**see Table 5**).

Mother and child health:

Diarrhea disease was the primary focus area of the mother and child health component, while the plan did not mention decreasing its prevalence by the end of the study period. Regarding the infant mortality rate (IMR) and neonatal mortality rate (NMR) per 1000 live births there was an increase of 8.6% and 46.7% for IMR and NMR respectively. The unified vaccination program has been adopted in Palestine since 1995 (**Figure 1**). Vaccination coverage of diphtheria, tetanus (dT) for teenagers and Tetanus toxoid (TT2) for childbearing women increased by 1.9% and 113.6% respectively. Under-five years of age

mortality rates (U5MRs) per 100,000 children due to acute respiratory infection (ARI) decreased by 56.9%. The vaccination coverage for Diphtheria, Pertusses, Tetanus (DPT3), Trivalent Oral Polio Vaccine (OPV3), Hepatitis B Virus (HBV3), Bacillus of Calmet and Gurin (BCG) and measles improved (98-100%) by the end of the study period. The trend of vaccination coverage in Palestine during the study period revealed a significant improvement (**see Table 5**). There were no reported cases of polio, measles as well as neonatal tetanus in 2003 (**see Table 6**).

Environmental Health: Although there is an improvement water supply network (91.9% in urban, 63.3% in rural and 89.4% in refugee camps in year 2002), the microbiological examination indicated contamination of drinking water (prevalence of contaminated water samples with coliform was 15.5% and 20.4 for 1999 and 2003 respectively). Also the majority of samples (72.3%) collected from drinking water wells in 2003 were contaminated by high concentration level of chloride (> 250 part per million, ppm). With regards to nitrate, 60.4% of samples were contaminated by high concentration level of nitrate (>50 part per million). The percentage of houses connected to public sewage networks varied according to locality; the sewage network covered 56.4% of urban houses, 6.8% of rural houses, and 71.2% of the refugee. Also, connection to sewer network was higher in GS (60%) than in WB (35%). Although food safety and reduction of food contamination was adopted by planners, 25% of food samples in 2004 were contaminated by microbiological and chemical pollutants. Furthermore, by 2003 food poisoning increased by 22.4%. The amount of pesticides used for agriculture local product decreased

during the study period (987 tons in 1999; 494 tons in 2003) with a decrease rate of 49.9%. The same trend was for active ingredients (450 active ingredients before 2003 versus 242 after 2003) with a decrease rate of 46.2%. Although there was reduction of chemical insecticide against sand fly, the incidence rate of *Cutanous leishmaniasis* per 100,000 populations increased (1.9 in 1999 versus 6.3 in 2003) by 213%.

Mental Health*:* Maximizing services of PHC facilities for mental health was adopted strategy. However, the mental health care centers increased only from 13 centers in 1998 to 15 in 2003. In the meanwhile, the reported incidence mental disorders per 100,000 population in PHC increased by approximately one-third (32 in 2000 to 42.6 in 2003).

Epidemiology

*Communicable diseases****:*** the trend of selected morbidity indicators by EMRO-WHO is listed in **Table 6**. Pulmonary and extra pulmonary tuberculosis (TB), meningococcal meningitis, HAV decreased in WB while they increased in GS. In WB and GS, there is an obvious reduction of acute flaccid paralysis (AFP), malaria and HBV, while the reported incidence of HCV increased.

Non-communicable diseases: A surveillance system has not been adopted for non-communicable diseases yet. A cancer registry system was started in GS and WB in 1997.

Family medicine: The plan focuses on family medicine by upgrading and updating the performance of general practitioners in PHC settings.

Occupational health and safety: A system for surveillance of important occupational diseases and work related injuries was planned. Currently, a health

management information system is developing new software in order to have a reliable updated databank.

Rehabilitation and disabilities: The plan emphasized on making comprehensive rehabilitation services available to a wide range of the population, while there is a lack of precise figures about disability during the study period.

Aging and elderly health: A baseline study on geriatric care and services including mortality and morbidity was planned to identify their special needs.

Nutrition: It was planned to reduce the prevalence of nutrition related diseases, while it was difficult to formulate indicators since there is a lack of related information in the annual reports.

Discussion

The PNSHP 1999-2003 focused on PHC, addressing health promotion and environmental health as important components of PHC strategy. Although, there is progress and promising changes on vital health, especially on CDR and life expectancy, there are also alarming indicators, which should attract the attention of Palestinian leaders. Similarly to European and global trends, one of the main leading causes of death is cardiovascular disease (heart diseases) (19-20). This shift in disease patterns indicates that Palestine, like other Middle East countries, is undergoing an epidemiologic-demographic transition state (21). This study revealed also important variations between the GS and the WB regarding the population per PHC center, which is attributed to demographic differences. The increase of visits seen by GPs per capita per year could be explained by increased patients' demand and their satisfaction with PHC services, this being

in accordance with the Palestinian health policy which invests on PHC and on GPs. Morbidity encountered by GPs, general practice care utilization and patients' satisfaction within PHC settings are subjects in need of further in-depth investigation. Those findings have implications on health policy, especially for the WB where scattered localities demand a higher number of centers (the result being a smaller population per center) and the PHC workforce needs to be drastically increased.

Health Promotion and education

Targets relating to heart-related diseases have not been achieved by the year 2003, since the mortality rate from all diseases at this category decreased only by 13.2% instead of the planned figure of 40%. In addition, the mortality rate from stroke decreased by 6.5% instead of 40%. A decrease in both breast cancer and lung cancer mortality rate has been achieved, and the latter may be attributed to the reduction of prevalence of smoking among adults. The reduction of HIV/AIDS (64.3%) exceeded the planned figure (50%). Regarding STDs, the planned targets have not been achieved yet with the incidence of STDs having increased rather than decreased. In general, improvement in health promotion services contributed to a decrease of heart and cancer diseases. This has been done through the work of the health promotion directorate in the MOH by conducting extensive awareness programs, including improvement of health related life styles (6). Regarding alcohol, it was planned to reduce the proportion of young people who use alcohol and drugs by 35%, while no data were available may be because drinking alcohol is forbidden and its trade is not allowed in Gaza strip and West bank.

Women's health

Reduction of MMR occurred (decreased by 66.0%) while the strategic figure ranged between 20-50%. Increases of 46.3% in family planning centers exceeded the planned figure (30%). The study revealed a decrease of anemia among women (40.9%) by more than four times the planned figure (10%). The planned strategy of improvement of women's health indices has been mostly achieved as a result of action by Women's Health and Development Directorate in cooperation with United Nations Funds for Population Activities (UNFPA), the European Union, Italian Cooperation and other collaborations (22).

Mother and child health care

The prevalence of diarrheal disease was reported in 1996 (23) be 13.2% with a duration episode of 4 days among children under 5 years of age. Additional surveys among refugees in 2001 (24) found a prevalence of 13.7%. Therefore; this disease needs more future consideration by MOH. The result revealed achievable improvements of U5MRs (56.9%) compared with a planned figure of 30%. Also remarkable improvement has occurred regarding immunization coverage. Eradication of Polio as well as elimination of measles and neonatal tetanus is attributed to the effectiveness of the adopted expanded immunization program (25). The study showed an increase of IMR and neonatal mortality rate. However, this increase might not be real but may be attributed to improvement of reporting of infant deaths, neonatal deaths and live births. In general, immunization has succeeded in protecting children from vaccine-preventable diseases such as tetanus, diphtheria, measles and polio.

Environmental health

The study revealed a higher level of chloride and nitrate concentrations in drinking water wells than that of acceptable level for chloride (250 ppm) and Nitrate (50 ppm) (26), which is consistent with the previous study (27). Furthermore, this is confirmed by local governmental reports (28-29) which attributed nitrate contaminants to agricultural fertilizers and salinity to surface salination, seawater intrusion, and possible upcoming of deep brines due to over-plumbing of fresh water. Ideally, coliforms (bacteria that cause illnesses of the stomach, intestines, and other systems of the body) should not be detected in any 100ml sample of drinking water (30), but observed levels of coilforms indicate cross-contamination between poor sewage and drinking water networks. Poor environmental health and hygiene conditions have been reported as major factors in the occurrence of diarrhea with children younger than 5 years being at high risk (24). The reported increase of cutaneous leishmaniasis in WB is consistent with another study which considered the WB as an endemic area for this parasite (31).

Mental Health*:* There is an increase of mental health centers by two centers (15.4%), while the increase of mental disorder incidence rate is more than double (33.1%). The result is consistent with the WHO report (32), which attributed the huge increase of the admissions of new mental health patients to measures taken by the Israeli occupation forces leading to deterioration of the mental situation.

Epidemiology

Communicable diseases: The plan focused on the epidemiological aspects of communicable disease reduction. This reduction is obvious, while increase

incidence of some diseases may be due to either a real increase or to an improvement of early detection of diseases such as HCV.

Non-communicable diseases: The prevalence of diabetes, cardiovascular diseases and other chronic non-communicable diseases is not well known. Therefore, conducting a national survey and further research is recommended.

Family medicine: Family medicine has been recognized in Palestine since 1995(5), while the quality of family medicine/general practice care has not been assessed at the end of the study period which urges the conducting of quality assessment study in this filed.

Occupational health and safety*:* there are few publications about occupational health, demonstrating the health impact of pesticide exposure among farm workers (33-34), and the health impact of lead exposure among Palestinian children (35). Further studies related to a wide range of occupational hazards should be conducted.

Rehabilitation and disability*:* Despite the fact that the plan focused on expanding rehabilitation and disability services to cover up to 80% of the population by 2003, little has been done, while there was an increase of disabilities as a result of the Israeli aggression. Since the start of the Intifada (36) in September 2000, disabilities related to injuries and mental disorders have risen significantly. Five percent of disabilities in Palestine resulted from Israeli aggression and more than half (55 percent) are between 5-24 years of age (37).

Aging and geriatric health: The field of geriatric care is not well-developed in Palestine. Elderly people comprise 5.3 % of the total population and special attention should be given to them. A few NGOs are running limited geriatric

services.

Nutrition*:* while there is lack of nutrition data within the annual reports, a recently published report has emphasized that the nutrition status in Palestine has worsened since the year 2000, attributed to losses of jobs, earning and assets. Real per capita income has decreased by half since the beginning of the study period (1999), resulting in 6 out of 10 people falling below the poverty line of US$ 2.10 per day (38).

Conclusions and recommendations

The study revealed achievements and failures of the national strategy of Palestinian PHC and conveys certain messages for health planners who need to invest on health promotion, family medicine and public health to improve morbidity and mortality. The new plan should focus on non-communicable diseases. Health hazard items deteriorating the environment should become a new subject in the MOH agenda. Lack of follow-up implementation as well as political and socioeconomic instability in Palestine were the main barriers against the achievement of PHC strategy, urging international intervention and allocation of financial supports to Palestinian MOH.

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Box 1 Definitions and calculation of health indicators mentioned in the study

Health Indicator*	Definition	Calculation
Crude Death Rate (CDR/1000 people)	The number of death in calendar year, divided by the population on July of that year, quotient being multiplied by 1000	No. of deaths during the year x 1000 Average (midyear)population**
Crude Birth Rate (CBR/1000 people)	A summary crude rate based on the number of live births in a known population over a given period of time	No. of births in area during one year x 1000 Average total population in area during the same year
Infant Mortality Rate (IMR/1000 live births)	A measure of the rate at which deaths occur in children less than one year.	No. of deaths in children < 1 Y old in one year x 1000 No. of live births in the same year
Maternal Mortality Rate (MMR/1000 live births)	A measure of women's risk of dying from causes associated with pregnancy.	No of maternal deaths in given area during one year x 1000 No. of live births in the population in the same area during the same year
Total Fertility Rate (TFR)	An estimate of the total number of children a thousand women would bear if they went on having children at present age-specific fertility rate	Summing the age specific fertility rates for all ages and multiply by the interval into which the ages are grouped.
Incidence Rate (IR/100,000 people)	A measure of rate at which new cases or events occurred in a defined community	No. of new cases of disease in specific period of time x 100,000 Population exposed to risk during the period
Prevalence Rate (PR/100,000 people)	The total number of cases or events or conditions at a particular point in time divided by the total population at risk at the same point in time. It's used for diseases or events that have along average duration.	No. of persons with diseases at a particular pont in time x 100,000 Total population
Live Births	Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which after such separation, breaths or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles , whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live-born.	The number of live births includes all live births during the given calendar year, irrespective of registration of the date of birth.
Cause Specific Mortality Rate (CSMR/1000 people)	Is probably the most important epidemiological index available , which approximates the risk of death from a specific condition	No of deaths from a stated cause in a year x 1000 Average (midyear)population
Life Expectancy (LE)	The average number of additional years a person would live if current mortality trends were to continue.	Computed by life table
Neonatal Mortality Rate NMR/1000 live births	The number of deaths in infants under 28 days of age in a given period, usually one year, per 1000 live births in the same period	No. of deaths in year under 28 days of age x 1000 No. of live births in year

* Health indicator is a quantitative measurement that reflects, or indicates the state of health of persons in defined population and is a useful tool for monitoring change over time and for comparing areas (*Ref 39*).

** An official estimate of resident mid year population as estimated by PCBS for years 1997-2025 (*Ref. 1*).

Table 1 Elements of Primary Health Care mentioned in Palestinian national strategic health plan 1999-2003

Elements	Topic	Pages range	Total pages	%
Element 1	**Health promotion and education**	**106-115**	**10**	**18.2**
Element 2	Family medicine	116-117	2	3.6
Element 3	Women's health and development	118-121	4	7.3
Element 4	Mother and child health as well as child well being programs	122-128	7	12.8
Element 5	School health	129-131	3	5.5
Element 6	**Environmental health**	**132-140**	**9**	**16.4**
Element7	Occupational health and safety	141-142	2	3.6
Element 8	Road safety national program	143-143	1	1.8
Element 9	Oral and dental health	144-145	2	3.6
Element 10	Mental health and mental disorder	146-149	4	7.3
Element 11	Aging and elderly health	150-151	2	3.6
Element 12	Nutrition	152-153	2	3.6
Element 13	Epidemiology	154-157	4	7.3
Element 14	Rehabilitation	158-159	2	3.6
References	18 references	160	1	1.8
Total		55	55	100

Table 2 Components of Palestinian Primary Health Care strategy 1999-2003

Component	Area of focus
1. Health promotion and education	o Reproductive health o Chronic diseases o Chronic heart diseases o Cancer o Injuries o Smoking o Sexually Transmitted Diseases and HIV/AIDS o Alcohol and other drugs
2. Women's health	o Maternal mortality o Anemia among women o Family planning o Deliveries
3. Mothers and child health	National Programs on Child Well-Being o Diarrhoeal disease program o Acute respiratory infection program o Expanded program on immunization o Polio Eradication o Measles elimination o Neonatal tetanus elimination
4. School health	o Coverage of school health
5. Environmental health	o Water safety and quality o Sanitation and waste water treatment o Solid waste o Food safety o Vector control o Control of air pollution
6. Mental health and mental disorders	o PHC services for mental health o Mental disorders
7. Epidemiology	o Communicable disease o Sexual Transmitted Diseases o National TB control Plan o Non communicable disease
8. Oral and dental health	
9. Family medicine	
10. Occupational health and safety	
11. Road safety national program	
12. Rehabilitation and disabilities	
13. Aging and elderly health	
14. Nutrition	

Source: (*Ref. 4*).

Table 3.1 Demographic/health status indicators – Palestine (1999-2003)

Year	Population#	CBR[1]/1000 Population	CDR[2]/1000 Population	IMR[3]/1000 Population	LE[4] at birth	Total Fertility Rate
1999	3,019,704	32.8	3.4	22.1	71.7	4.41
2000	3,150,056	33.2	3.0	22.0	71.8	4.34
2001	3,298,951	28.0	2.8	22.9	71.82	4.05
2002	3,464,550	27.2	3.1	23.3	71.85	4.05
2003	3,737,895	27.2	2.7	24.0	72.3	3.89
% of Δ*	+20.4	-17.1%	- 0.6%	+8.6%	+0.80%	-11.8%

Source: PCBS 1999 (*Ref. 1*).

* (year 1999 vs. year 2003); percentage of difference was calculated as the following: [*(data of year 2003 – data of year 1999)/ data of year 1999] x 100*; positive means increase, negative means decrease.

1 Crude Birth Rate, 2 Crude Death Rate, 3 Infant Mortality Rate, 4 Life Expectancy

Table 3.1 Demographic/health status indicators in West Bank and Gaza Strip (1999-2003)

Year	Population		CBR/1000 Population		CDR/1000 Population		IMR/1000 Population		Total Fertility Rate	
	WB[1]	GS[2]	WB	GS	WB	GS	WB	GS	WB	GS
1999	1,932,637	1,087,067	32.3	33.8	3.3	3.4	10.8	22.1	4.1	5.0
2000	2,011,930	1,138,126	32.8	33.6	3.3	3.2	9.8	22.0	4.0	4.9
2001	2,102,360	1,196,591	26.1	31.5	2.5	3.3	8.7	22.9	3.7	4.7
2002	2,202,641	1,261,909	23.9	33.1	2.9	3.5	18.4	23.3	3.6	4.8
2003	2,367,550	1,370,345	25.1	30.8	2.4	3.2	11.2	24.0	3.4	4.7
% of Δ*	+22.5	+26.1	-22.3	-8.9	-27.3	-5.9	+3.7	+8.6	-17.1	-6.0

* (year 1999 vs year 2003); percentage of difference was calculated as the following: [*(data of year 2003 – data of year 1999)/ data of year 1999] x 100*; positive means increase, negative means decrease

1 West Bank

2 Gaza Strip

Table 4 Measurable indicators of PHC strategy to be achieved by the year 2003

	PHC aspects (planned figures)	Formulated Indicators	Fig (year1)	Fig (year2)	% of Δ[1]
	Health Promotion and Education				
	Chronic Heart Diseases				
o	Reduce the level of death caused by All Heart Diseases-AHD (**40%)**	CSMR of AHD/100,000 people	64.3(99)	55.8(03)	-13.2
o	Reduce the level of death caused by Stroke (**40%)**	CSMR of Stroke/100,000 people	32.4(99)	30.3(03)	-6.5
	Cancer				
o	Reduce the level of death caused by Breast Cancer (BC)- **(NS)**	CSMR of BC/100,000 females	3.0 (99)	2.5 (03)	-16.7
o	Reduce the level of death caused by Lung Cancer-LC (**NS**)	CSMR of LC/100,000 people	4.8(99)	3.8(03)	-20.8
	Smoking				
o	Reduce prevalence of smoking (20%)	PR of smoking for > 10 years old	22.1(00) a	18 (03) a	-18.6
	Sexual Transmitted Diseases (STDs)				
o	Reduce the incidence of HIV/AIDS (**50%**)	IR of HIV/AIDS /100,000 people	0.14(99)	0.05(03)	-64.3
o	Reduce the incidence of STDS (**50%**)	IR of STDS /100,000 people	137.1(99)	226.9(03)	+65.5
	Women's health				
o	Reduce maternal Mortality Ratio-MMR (**20-50%**)	MMR/100,000 live births	37.3(97)	12.7(03)	-66.0
o	Increase proportion of deliveries attended by trained personnel (**10%**)	% of deliveries attended by trained personnel	94.8(00)	95.2(03)	+0.4
o	Decrease the prevalence of anemia among women (**10%**)	PR (%) of anemia among women	55(00)	32.5(03)	-40.9
o	Increase PHC centers providing Family Planning (**30%**)	Number of Family Planning centers	67(99)	98(03)	+46.3
o	Increase married women use contraceptive (**NS**)	Percent of married women using contraceptive	45.2(96)b	51.4(00)b	-13.7
	Mother and Child Health Care				
o	Reduce Infant Mortality Rate IMR (**To be 15**)	IMR/1000 live births	22.1(97)	24(03)	+8.6
o	Reduce Neonatal deaths by (**50%**)	Neonatal MR/1000 live birth	7.5(99)	11(03)	+46.7
o	Increase vaccination coverage especially TT for teenagers (**100%**)	% of dT vaccination coverage for adult students	97.2(99)	99.1(03)	+1.9
o	Decrease U5MRs due to ARI (**30%**)	U5MRs of ARI/100,000 children <5years old	36.4(00)	15.7(03)	-56.9
o	Sustain converge immunization for DPT3, OPV3, HBV3, BCG and measles (**>95%**)	All vaccination coverage (%)	<95(99)	98-100(03)	+
o	Increase TT2 in women of child bearing age **(NS)**	TT2 vaccination coverage (%)	23.6(00)	50.4(03)	+113.6
	School Health				
o	Increase coverage of school health **(NS)**	% of students covered by school health	96.2(00)	96.3(03)	+0.1

[1] (year1 vs. year2); percentage of difference was calculated as the following: [*(data of year2 – data of year1)/ data of year1] x 100*; positive means increase, negative means decrease.

CSMP=Cause-Specific Mortality Rate, NS= Not Specified, IR= Incidence Rate, PR= Prevalence Rate, RTA= Road Traffic Accidents, U5MRs= Under Five Mortality Rates, ARI= Acute Respiratory Infection.

[a] Source: HDR 2004 (*Ref.40*).

[b] Source: PCBS 2002 (*Ref. 13*).

Table 4 Measurable indicators of PHC strategy to be achieved by the year 2003

PHC aspects (planned figures)	Formulated Indicators	Fig (year1)	Fig (year2)	% of Δ[1]
Environmental Health				
Water safety and quality				
o Reach safe quality water (**100%**)	% of households connected to public water networks			
	(Urban)	NA	91.9[(02)c]	NC
	(Rural)	NA	63.3[(02)c]	NC
	(Refugees)	NA	89.4[(02)c]	NC
	% of coli form contamination of potable water	15.5 [(00)]	20.4[(03)]	+31.6
	% of drinking water samples did not match WHO standards for chloride	NA	72.3 [(03)]	NC
	% of drinking water samples did not match WHO standards for Nitrate	NA	60.4 [(03)]	NC
Wastewater				
o High improvement the connection to sewers networks **(NS)**	% of households connected by public sewage networks			
	(Urban)	NA	56.4[(02)c]	NC
	(Rural)	NA	6.8[(02)c]	NC
	(Refugees)	NA	71.2[(02)c]	NC
	% of households connect to sewer networks (GS)	NA	60[(03)d]	NC
	% of households connect to sewer networks (WB)	NA	35[(03)d]	NC
Food Safety				
o Reduce contamination and ensure safety of food products and services **(NS)**	% of contaminated food samples (microbiological and chemical tests)	NA	25[(03)]	NC
	Incidence of food poising	18.3[(99)]	22.4[(03)]	+22.4
	Chemical contamination (Amount of pesticides used in agriculture, in tons)	987[(99)e]	494[(03)e]	-49.9
	Number of active ingredients of pesticides	450[(99-03)f]	242[(03+)f]	-46.2
Vector Control				
o Reduce the incidence of vector borne disease **(NS)**	IR of Cutaneous Leishmaniasis/ 100,000 people*	1.9[(99)]	6.3[(03)]	+231
	IR of Visceral Leishmaniasis/ 100,000 people*	0.7[(99)]	0.1[(03)]	- 85.7
Reduce the amount of chemical insecticides used (**NS**)	The amount of insecticide used (liter)	8193[(99)] (500 localities)	7269[(03)] (708 localities)	-11.3 + 42
Mental health and mental disorder				
o Maximize the use of PHC facilities for mental health services **(NS)**	Number of Mental Health Centers	13[(98)]	15[(03)]	+15.4
	IR/100,000 of mental disorder in PHC centers	32[(00)]	42.6[(03)**]	+33.1

[1] (year1 vs. year2); percentage of difference was calculated as the following: [*(data of year 2 – data of year1)/ data of year 1] x 100*; positive means increase, negative means decrease; NC means the percentage of difference cannot be calculated because of the figures of (year 1) were not available (NA).

* No cases from Gaza Strip were reported due to the absence of Leishmanias vector (sand fly).

** This include organic, Addiction, Schizophrenia, affective, neurosis, personality disorder, mental retardation, epilepsy and others.

[c] Source: PCBS 2002 (*Ref. 14*).

[d] Source: EQA 2003 (*Ref.41*).

[e] Source: Kaware 2004a (*Ref. 42*).

[f] Source : Kaware 2004b (*Ref.43*).

Table 5 Coverage with PHC indicators (1999-2003)

Indicators	Item	Year 1999	2000	2001	2002	2003	% of Δ*
Infant fully immunized (Palestine)	BCG	91	92.2	97.2	95.6	99.5	+9.3
	DPT	89	93.3	96.8	96.5	97.7	+9.8
	OPV	89	93.4	96.9	96.5	98.2	+10.3
	Measles	91	92.5	97.6	93.7	100	+9.9
	HB	91	95.0	96	91.7	98.3	+8.0
	MMR	92	87.5	95.2	92.8	97.2	+5.7
	Mean§	90.5	92.3	96.9	94.5	98.5	
				$F_{(ANOVA)}$=22, P =0.0001			
Infant fully immunized (Gaza Strip)	BCG	NA	NA	97.0	100	100	NC
	DPT	NA	NA	98.0	100	100	NC
	OPV	NA	NA	98.0	100	100	NC
	Measles	NA	NA	98.9	99.6	100	NC
	HB	NA	NA	90.7	98.7	100	NC
	TT2+	NA	NA	43.8	41.7	61.4	NC
	MMR	NA	NA	95.0	90.1	97.6	NC
Infant fully immunized (West Bank)	BCG	NA	NA	97.4	85.5	97.8	NC
	DPT	NA	NA	96.1	85.7	95.5	NC
	OPV	NA	NA	96.1	85.7	96.2	NC
	Measles	NA	NA	96.7	85.8	97.9	NC
	HB	NA	NA	95.4	85.0	96.0	NC
	TT2+	NA	NA	25.8	22.1	42.5	NC
	MMR	NA	NA	95.4	89.7	97.0	NC
Family Planning Centers (MOH)	PL	67	96	121	91	98	+46.3
	GS	13	42	44	16	17	+30.8
	WB	54	54	77	75	81	+50.0
Percent of Pregnant women attended by trained personnel (MOH)	PL	28.4	28.9	33	31.4	34.2	+20.4
	GS	26.8	29.5	32.7	31.5	32.1	+19.8
	WB	29.6	28.5	32.9	31.4	36	+21.6

* (year1999 vs. year2003); percentage of difference was calculated as the following: [*(data of year 2003 – data of year 1999)/ data of year 1999] x 100*; positive means increase, negative means decrease; NC means the percentage of difference cannot be calculated because of the figures of year 1999 were not available (NA).

§ the different means we compared by ANOVA, the difference between two means were compared by *post hoc* Tukey test, which reveals significance difference between mean of figures of year 2001, 2002 and 2003 versus mean of figure of year 1999 ($P<0.05$).

Table 6 Selected morbidity indicators by EMRO-WHO[1] (Incidence/100,000 people)

Disease	Area	Year 1999§	2000§	2001	2002	2003	% of Δ*
Cholera, Polio, Diphtheria	PL	0	0	0	0	0	
Measles	GS	0	0.09	0	0	0	NC
	WB	8.68	0.24	0.14	0.14	0	-100.00
	Pl	5.16	0.18	0.09	0.09	0	-100.00
Neonatal Tetanus Ÿ	GS	0	5.23	0	0	0	NC
	WB	0	1.84	0	1.90	0	NC
	Pl	0	3.24	0	1.06	0	NC
Acute flaccid paralysis (AFP¥)	GS	0.73	0.18	1.17	1.12	0	-100
	WB	1.04	1.00	0.85	0.10	0.67	-35.58
	PL	0.92	0.68	0.97	0.50	0.41	-55.43
Pulmonary tuberculosis (TB)	GS	0.83	1.58	1.17	1.27	1.31	+57.83
	WB	0.94	1.21	0.76	0.45	0.38	-59.57
	Pl	0.90	1.36	0.91	0.75	0.72	-20.00
Extra-Pulmonary TB	GS	0.37	1.85	0.75	1.19	1.39	+275.68
	WB	0.63	0.54	0.62	0.09	0.21	-66.67
	Pl	0.52	1.07	0.67	0.49	0.64	+23.08
Tetanus	GS	0	0.35	0	0.08	0	NC
	WB	0.25	0.12	0	0.09	0	-100
	Pl	0.15	0.21	0	0.09	0	-100
Malaria	GS	0.09	0.18	0.17	0	0.07	-22.22
	WB	0.06	0.06	0	0	0.00	- 100
	PL	0.07	0.11	0.06	0	0.03	-57.14
AIDS/HIV[2] infection	GS	0.28	0.09	0.42	0	0.07	-75.00
	WB	0.06	0.18	0.00	0	0.04	-33.33
	Pl	0.15	0.14	0.15	0	0.05	-66.67
Meningococcal meningitis	GS	6.72	8.08	8.94	9.83	12.62	+87.80
	WB	0.44	0.36	0.19	0.14	0.00	-100
	Pl	2.99	3.51	3.36	3.67	4.63	+54.85
Hepatitis B Virus (HBV) carriers Ŧ	GS	58.87	84.79	69.36	27.18	34.44	-41.50
	WB	70.57	69.98	68.59	45.76	48.57	-31.17
	Pl	65.82	76.01	68.87	38.99	43.39	-34.08
HBV Cases&	GS	0	0.44	1.00	2.14	0.15	NC
	WB	5.60	5.25	3.14	2.81	2.66	-52.50
	Pl	3.32	3.29	2.36	2.57	1.74	-47.59
Hepatitis C Virus (HCV) Cases	GS	0	0.00	0.08	0.55	0.15	NC
	WB	0	0.00	0.00	0.00	0.21	NC
	Pl	0	0.00	0.03	0.20	0.19	NC
HCV carriers	GS	2.85	6.41	7.69	2.93	4.82	+69.12
	WB	5.54	10.44	6.85	4.81	6.34	+14.44
	Pl	4.45	8.8	7.15	4.13	5.78	+29.89
Hepatitis A Virus (HAV)	GS	50.04	49.73	64.93	30.03	58.82	+17.55
	WB	118.12	78.61	61.69	47.17	54.32	-54.01
	Pl	90.48	66.85	62.87	40.93	55.97	-38.14

* (year1999 vs. year2003); percentage of difference was calculated as the following: [*(data of year 2003 – data of year 1999)/ data of year 1999] x 100*; positive means increase, negative means decrease; NC means the percentage of difference cannot be calculated because of zero reporting cases in year 1999.

¥ The denominator is the number of population ≤ 15 years old

Ÿ The denominator is the number of live births.

§ The data of Jerusalem was not available; therefore the Jerusalem population is excluded form the denominator

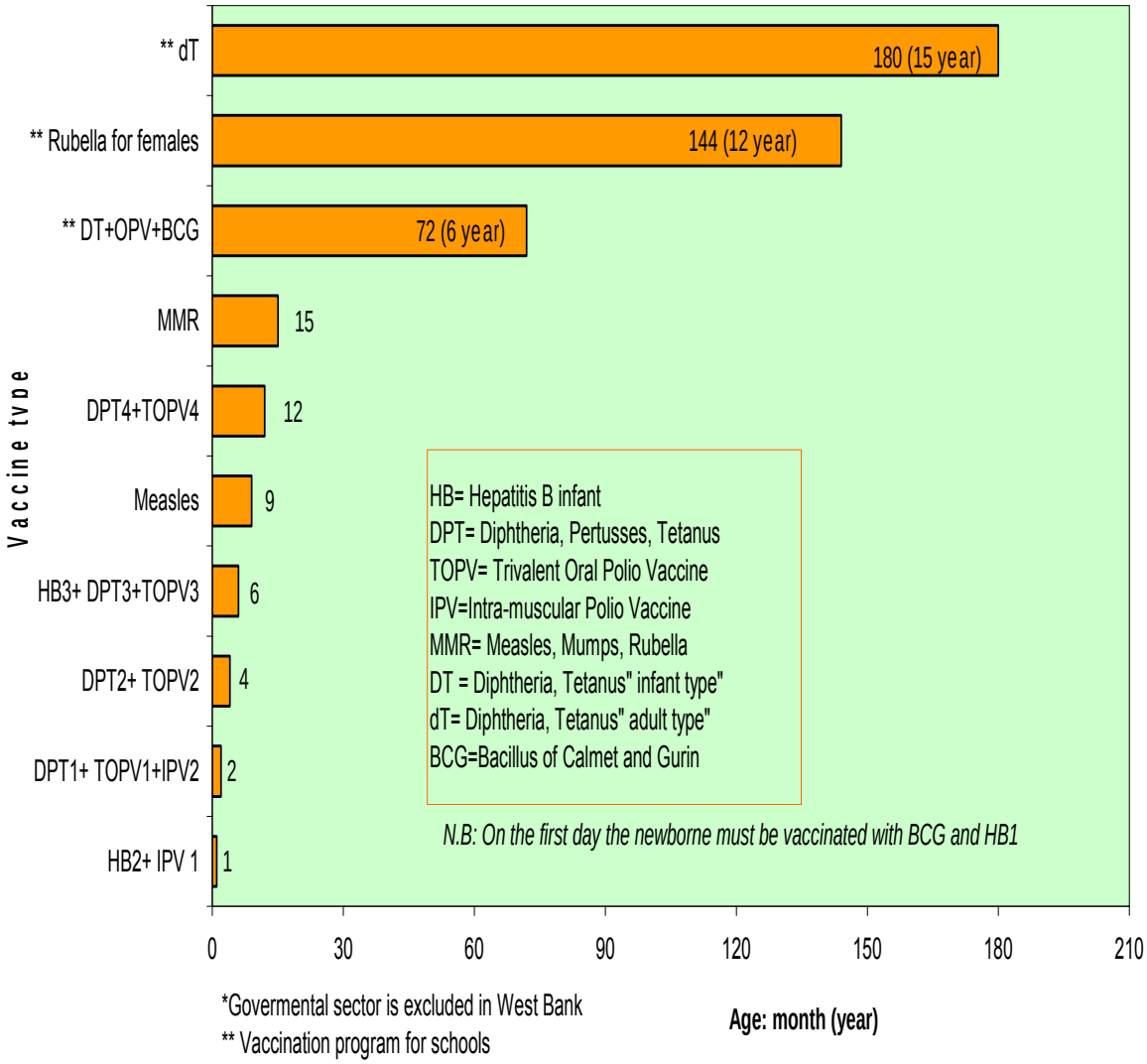
Ŧ the carrier is a person that has specific infectious agent in the absence of clinical disease and that serve as a potential source for further transmission of the infection.

& The case is a person who is identified as having a particular characteristics such as disease, behavior or condition.

1 Eastern Mediterranean Regional Office- World Health Organization

2 Human immunodeficiency virus/acquired immune deficiency syndrome

Figure 1: The unified vaccination program in Palestine since 1995



Source: Guidance for Vaccination- MOH, 1995 (*Ref. 25*)

The Health Management Information System in Primary Health Care: The Palestinian Model

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Abstract

The management capabilities and performance of primary health care (PHC) can be improved by strengthening the information system. This study focuses on the Palestinian Health Management Information System (HMIS), used in PHC and reports on the achievements and shortcomings. A retrospective review and content analysis of the HMIS documentation was carried out and a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analyis was used to identify potential opportunities and risks. Clinical information and epidemiological surveillance systems have been implemented. Further subsystems, such as PHC registry, occupational health and public health laboratory have been created. The on-line website disseminates PHC information and reports (www.moh.gov.ps). The SWOT analysis reveals a viable Palestinian HMIS. Widening of the implementation of the clinical information system will improve health policy and management in Palestine and improve the primary health services' functioning, effectiveness, efficiency and performance. Efforts to mitigate the thereats of the the Palestinian HMIS are needed.

Keywords

clinical information system, epidemiological surveillance system, health management information system(HIS), SWOT analysis.

Introduction

Delivering effective PHC to a population is a complex endeavor that is highly dependant on health information. The HMIS consists of integrated data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency, through better management at all levels of health services [1]. The HMIS is the basis for planning, managing and evaluating the PHC systems [2]. The development of a HMIS was an urgent priority of the Palestinian health care system established in 1994 and accountable for the Occupied Palestinian Territories, a combined area of 6000 Km^2 (Figure 1), divided into two geographically distinct territorial units, the West Bank and the Gaza Strip [3].

Insert Figure 1

The West Bank and Gaza Strip, differing in their natural landscape, population distribution and legal systems are inhabited by more than 3.7 million individuals, of whom about 63% reside in West Bank [4,5]. The necessity of development of the Palestinian HMIS was emphasized in the governmental strategic health plans in 1994 and 1999 [6-8], with the purpose of supporting the functioning of PHC system. The aim of this study is to highlight the Palestinian HMIS, with a focus on the information system, as applied in governmental PHC sector.

The objectives of the study were to:

1. Describe the HMIS prior to 1999 (when the second strategy was published).
2. Evaluate to what extent the Palestinian National Strategic Health Plan (1999-2003) has emphasized the HMIS and to what extent the HMIS has been implemented, particularly in PHC.

3. Present the PHC information system's working model.
4. Identify the areas of positive aspects and negative risks that influence the governmental HMIS.

Methods

This study is divided into two parts. The first part includes a narrative summary of history of HMIS prior to 1999 and the modeling of HMIS that is currently applied in the MOH (informative part). The second is the evaluative part, which includes the evaluation of the content of Palestinian strategic health plan (1999-2003) in respect to HMIS and the identification of negative and positive aspects of the Palestinian HMIS.

Informative part

A document research was performed, a methodological review of available literature was undertaken and data collected for almost the whole of the HMIS currently present in the health sector of Palestine. Published and unpublished documents including government reports [9-14] and other literature such as guidelines and recommendations from external authorities [15,16] were reviewed. Situational analysis was used to describe the HMIS in the period prior to 1999. Further information was obtained from health decision makers, HMIS professionals and stakeholders.

Evaluative part

Content analysis, which involved the systematic identification, linking and numerating of specific characteristics, in order to make inferences from the data [17,18], was used to evaluate to what extent the Palestinian National Strategic Health Plan 1999-2003 [7] has emphasized the HMIS (Table 1, Box 1 and 2). The working HMIS model in Palestine is presented in a diagram, based on the authors' experience. For identification of areas of positive aspects and negative risks that influenced the governmental HMIS, a SWOT analysis [19] was undertaken.

Results

Informative part

History of HMIS (prior to 1999)

The Palestinian health sector lacked reliable data in many areas such as morbidity, mortality and other health status measures. This fact complicated the process of identifying priorities, formulating policies and allocating resources. As indicated in the 1994 Palestinian National Health Plan, an efficient nation-wide computerized information system was necessary to improve the quality and efficiency of the Palestinian health care system. However, the existing HMIS was inadequate and lacked standardized operations at both regional and national levels. Data was not appropriately processed, leading to production of health data and indicators that were little used. In addition, Ministry of Health (MOH) lacked technical and financial resources, including appropriate equipment and qualified personnel. Therefore, the MOH developed several initiatives concerning this issue and presented them to potential donors. The World Bank approved some of these initiatives. Since 1995, the MOH, and its Directorate for health research, planning and development developed an information system to collect and analyze vital statistics in the Gaza Strip, including a computerized comprehensive population file with data such as births and deaths. This database was linked to hospital services. With the support provided through technical assistance from the health services management unit, the MOH was able to start a national information link for a new referral system. To achieve that, two pilot projects were developed, one in the Jabalia new clinic and the other at the outpatient department of Al Shifa Hospital at Gaza Strip and Ramallah PHC district center and Ramallah hospital at West Bank. The pilot projects effectively dealt with the reorganization of the medical records system. A computerized personnel system was developed with a comprehensive profile in the Gaza Strip, in which each employee has an individual file containing personal as well as employment related data. The MOH has been using the system for human resources development, related planning purposes and policy development. The health insurance system was also linked to the MOH management information system. In addition, the MOH participated in the on-going effort to develop a national information and communication system to link all ministries and governmental agencies via satellites.

Evaluative part

The HMIS strategy (1999-2003) in respect to the primary health care

The Palestinian national strategic health plan focused on the HMIS. The planners prioritized this subject as the third one within the institutional building chapter. This chapter was ranked second (20.9%) in the contents of the national strategic health plan (Table 1). It included a vision and mission statement (presented in Box 1). The key issues of the national information system strategy are summarized in Box 2.

Insert Table 1

Insert Box 1

Insert Box 2

The development of a clinical information system was a first priority in the strategic health plan. This system was pilot tested in four clinics (two in the Gaza Strip and two in the West Bank). It included the electronic patient health record and offers six modules: "*master patient index', "appointment system", "laboratories", "diabetic patient visits", "pharmacy", "patient co-payment*", while it also enabled users such as physicians, nurses and registrars to access required information via a local area network (LAN). A computer network system allowing sharing data from the central database was connected with the *"health insurance"*, *"population"* and *"mortality"* databases. The system provides reporting and follow-up of patients and it assures the patients' privacy. Through this integration, the MOH aimed to accomplish the national strategy regarding creation of health data warehouses.

Building a modern and sustainable HMIS was one of the most significant priorities in achieving the national health objectives and the MOH implemented the Health System Development Project (HSDP), financed by the International Development Association (IDA). The project commenced in May, 2000 and involved several interrelated activities that aimed to support the development of the HMIS. One of the most important activities was the preparation of "standard health data dictionary" for the purposes described in Box 3.

Insert Box 3

Telemedicine services were not implemented due to insufficient financial support. Since 1994, there have been technical telecommunication improvements between health sectors, including PHC. The repeated Israeli incursions in the Gaza Strip and West Bank led to the destruction of several telecommunication infrastructures that connected PHC centers with the headquarters.

Although the website was not mentioned in the HMIS strategy; it was established (www.moh.gov.ps) and contributed to disseminating health related data as mentioned in the mission statement of the HMIS strategy (Box 1).

Model of information system in PHC

1- Palestinian health information center (PHIC)

It was established in 2003 and is acting as an incubator for supervising and archiving existing data in the MOH and working to build new systems. It has two branches one located in the Gaza Strip and the other in the West Bank, connected through a leased line. Currently the computer and network department is responsible for logistic and technical support to the Palestinian health information system.

2- PHC information system and subsystems

An *"Epidemiological surveillance system"* has been established and is continuously being improved; it contributed to reporting of notified diseases in daily, weekly, monthly and annual reports. Further subsystems were developed such as the "*Occupational Health"*, a subsystem for surveillance of important occupational diseases and work related injuries. "*Public Health laboratory"* is a subsystem created to collect data about food, water and environmental health parameters and to organize administrative work. It can generate monthly and annual reports to present PHC indicators. The *"PHC registry*" was developed and is based on the PHIC setting. This subsystem was built to collect data from all governmental PHC centers in Gaza Strip, to generate, and to disseminate monthly and annual reports on matters such as mother and child health,

immunization status, family planning, school health, clinic and laboratory activities, etc.

3. Interrelations and connections between systems/subsystems and the PHIC

Figure 2 shows how all the systems, subsystems and applications implemented in PHC are connected directly to the PHIC. In addition, PHC system and PHIC are connected with a health data warehouse. It is obvious that the data on PHC, produced by the clinical information system and subsystems, by other PHC providers (United Nation Relief and Works Agency, Non-Governmental organizations and private sector) and by the Palestinian Central Bureau of Statistics are available to the PHIC. All these data are accessible to the PHIC that processes these data in order to produce accurate PHC reports and indicators at the national level. Finally, reporting of effective data in the PHC system is expected to benefit both the general community and the decision-makers (as summarized in Box 4).

Insert Box 4

Although the MOH has prioritized the improvement of HMIS in the strategic plan, there are several positive and negative aspects of this system as indicated in the SWOT analysis shown in Box 5. The key issues of the strengths are the existence of a centralized and unified HMIS supported by well-qualified human resources. The weaknesses center on the unavailability of an allocated budget, on lack of hardware equipment and on the absence of an action plan to follow-up the progress of the HMIS. In addition, the instability of administrative staff due to repeated changes of government ministers, particularly Minster of Health, leads to lack of continuity. The opportunities are represented in various levels of cooperation and collaboration that are available to HMIS' staff members and administrators. This cooperation and collaboration can open several opportunities for improvement and development of the HMIS. Another opportunity is a recent establishment of World Health Organization (WHO)

website for the Gaza Strip and the West Bank (http://www.emro.who.int/palestine/), which will support the MOH website in the dissemination of PHC and other health information. The threats center on restrictions that are imposed by the Israeli occupation and international communities to the PNA. If this situation continues, it will lead to the collapse the PNA's whole systems.

Insert Box 5

Discussion

The main achievements

A review of the HMIS prior to 1999 reveals lack of reliable data in many areas, leading to an inability to use the available data for rational planning. The unstable political environment contributed substantially to this situation. These findings motivated the MOH to adopt the HMIS strategy in 1999, to focus its efforts on implementing this strategy, and to seek the cooperation of international institutions such as the World Bank. The World Bank insisted on establishing the PHIC, through the HSDP (1999-2005), so as to reach a unified and effective HMIS that can provide a modern, well-equipped and conducive workspace to the HMIS professionals at the MOH. Currently the PHIC is responsible for producing vital statistics, health indicators and health status reports in Palestine [15,16]. In Palestine, the clinical information system could contribute managing many difficulties, particularly concerning patients' privacy and control of their information, standardization of electronic health records, cost of adopting information technology, unbalanced financial incentives, and the varying levels of preparation across caregivers [20]. The epidemiological surveillance system which was emphasized as a strategic component for every

health care reform [21] has recently shown the effectiveness of its outcomes [22] which contribute to an effective communicable disease control in Palestine [23]. The occupational health subsystem has been established and a new software for this system is under development in order to have a reliable updated databank [22]. Public Health laboratory, which obtained the International Organization for Standardization (ISO) certificate, is producing data that are very important for formulating environmental health indicators.

Another achievement of the HMIS strategy was illustrated in the creation of the health data warehouses. This integration is very important to bring together information from various operational systems into a single environment, to avoid generation of duplicated counts and to serve the analytical and decision-making needs for everyday tactical decision-making and long-term strategizing [24]. The establishment of the Palestinian health data dictionary has provided users with a useful tool for answering questions such as the following: what information is included in health related databases, how the information will be used, and how the items in the databases relate to each other [25]. The MOH created new systems/subsystems to support the functioning of the PHC; the key issue in this regard was the adopting of a participatory approach during designing these software programs. This was done by a team of "information experts" through adequate involvement of key stakeholders, so as to reflect the needs and practical reality of primary care service providers and managers and to encourage ownership of the systems [26].

Strengths and limitations of the HMIS

The SWOT analysis, which is an effective method for prospective risk identification [27,28], reveals a promising Palestinian HMIS especially when

efforts are made to mitigate the burden of weakness and probable threats. Available personnel skills in health information system could assure the local sustainability and improvement of the system, while the existence of the website could contribute of exchange the experiences on the international level. Availability of resources and effective health management under a clear health policy, in addition to international support to HMIS is expected to overcome weaknesses and threats.

Conclusions

Most targets were achieved. A widening in the implementation of the clinical information system will contribute to improving the health policy and health care management in Palestine and to the primary health services' functioning, effectiveness, efficiency and performance. Efforts should be directed towards stability of the political and economic situation, which invitably will contribute to mitigating the negative aspects and sustain the development of the the Palestinian HMIS

Implications for policy

- A health management information system that provides accurate and up-to-date information is essential for development of primary health care.
- The full support of the Ministry of Health and other administrative bodies is important for the success of the health management information system.
- Stability of the economic and political conditions will enhance the viability and sustainability of the health management information system.

Implications for practice

- An integrated and unified health management information system improves co-ordination with all providers of health care services.

- Appropriate training and continuity of staff and a stable working environment contribute to the success of the health management information system.

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Table 1: Content analysis of the Palestinian National Strategic Health plan 1999-2003

Chapter	Topic	Pages range	Total pages	%
	Tables of contents	0-17	17	7.3
	Executive summary	18-24	7	3.0
Chapter 1	The Palestinian national vision for health	25-32	8	3.4
Chapter 2	Methodology used in development of the Palestinian national strategic health plan	33-38	6	2.6
Chapter 3	Institution building*	39-87	49	20.9
Chapter 4	Primary Health Care	88-160	73	31.2
Chapter 5	Secondary and tertiary care services.	161-197	37	15.8
Chapter 6	Support services	198-216	19	8.1
Chapter 7	Nursing and midwifery	217-228	12	5.1
Chapter 8	Medical services directorate	229-234	6	2.6
Total		**234**	**234**	**100.0**

* Instituional building includes:management structure and organizationall framework, health planning projects management, health management information system (pages from 48 to 50), public relations, health research, human resources development and management, quality of health care, health finance, health law, regislation, and regulations, international cooperation and cancer registry in Palestine [7].

Box 1. Vision and mission statement of health management information system strategy (1999-2003)

Vision	Mission
The culture of understanding and using data is accepted. A nation-wide health management information system including a valid epidemiological surveillance system with regular morbidity/mortality reporting is operational, reliable, sustainable and used by health agencies.	Health related data are produced, analyzed, disseminated, understood and used by Palestinian health providers and other relevant agencies.

Source: Ref. [7]

Box 2: Key issues of national information system strategy (1999-2003)

- Design a clinical information system at hospital and clinic levels.
- Design a national health data warehouse
- Create a health data dictionary
- Develop an advanced medical informatics applications, including electronics health records and telemedicine.
- Develop an integrated telecommunications infrastructure.
- Develop a system for rational linkage of management information system data to the planning and policy making processes.

Source: Ref. [7]

Box 3: The purposes of establishing a standard health data dictionary (14)

- To establish a set of uniform definitions for data items relating to the health services and population parameters.
- To provide uniform data elements harmonized with prevailing standards for electronic data entry and exchange.
- To promote uniformity, availability, reliability, validity, consistency and completeness of the data.
- To adapt nationally and internationally standard definitions and coding specifications, wherever possible.
- To promote the national standard definitions through being readily available to all individuals and health institutions responsible for maintaining or improving record systems.

OUTCOMES CONSIDERED

- Uniform data element collection from all health services.

Improvement of the quality of information for public policy debate on health issues.

Box 4: The aim of proper primary care data in Palestine

- to improve health care of the patients;
- to conduct need health assessment;
- to monitoring health care utilization;
- to put health strategy plan well as to project the future burden of diseases;
- to allocate resources;
- to improve performance management and to improve measuring of quality;
- to monitoring health inequalities;
- to set the priorities for conducting health research;
- to monitor the trends of communicable and non-communicable diseases.

Box 5: The SWOT* analysis for of Palestinian Health Management Information System

STRENGTHS

- HMIS[1] structure is available.
- A unified and centralized HMIS is established.
- Technical and professional personnel are available.
- HMIS[1] incubator is available.
- Existence of educational institutions for training of HMIS[1] staff.
- West Bank and Gaza Strip are active on HMIS[1] activities.
- Existence of a good infrastructure of information, communication and technology.
- Clear policy guidelines for HMIS[1] (health data dictionary).

WEAKNESSES

- Lack of allocated budget for HMIS[1]
- Lack of hardware equipment.
- Lack of action plan and follow- up the HMIS[1]
- Weak of transportation which sometimes delay the solution of technical problems.
- Delay of supplying resources based bureaucratic administrations.
- Instability of administrative staff due to repeated changes of governmental ministers.
- Low staff morale and intentions.
- High staff turnover.

OPPORTUNITIES

- Good working collaboration with the divisions /departments and Ministry of Information and Technology.
- The collaboration and networking with other stakeholders.
- Capacities built on various vertical programmers would help to roll a better HMIS[1].
- The website is useful tool of connecting MOH[2] with all who interested with Palestinian health care system including HMIS[1] and create the opportunity for cooperation and collaborations in this filed.
- Support from WHO[3] to Palestinian HMIS[1], and recently allocated website for West Bank and Gaza Strip.

THREATS

- Suspension of international aid.
- Instability of political and economic conditions due to hostile actions which threaten all Palestinian National Authority systems.

* SWOT: Strengths, Weaknesses, Opportunities and Threats
1 Health Management Information System, 2 Ministry of Health, 3 World Health Organizations, 4 Primary Health Care.

Figure 1: The map of Palestinian Occupied Territories

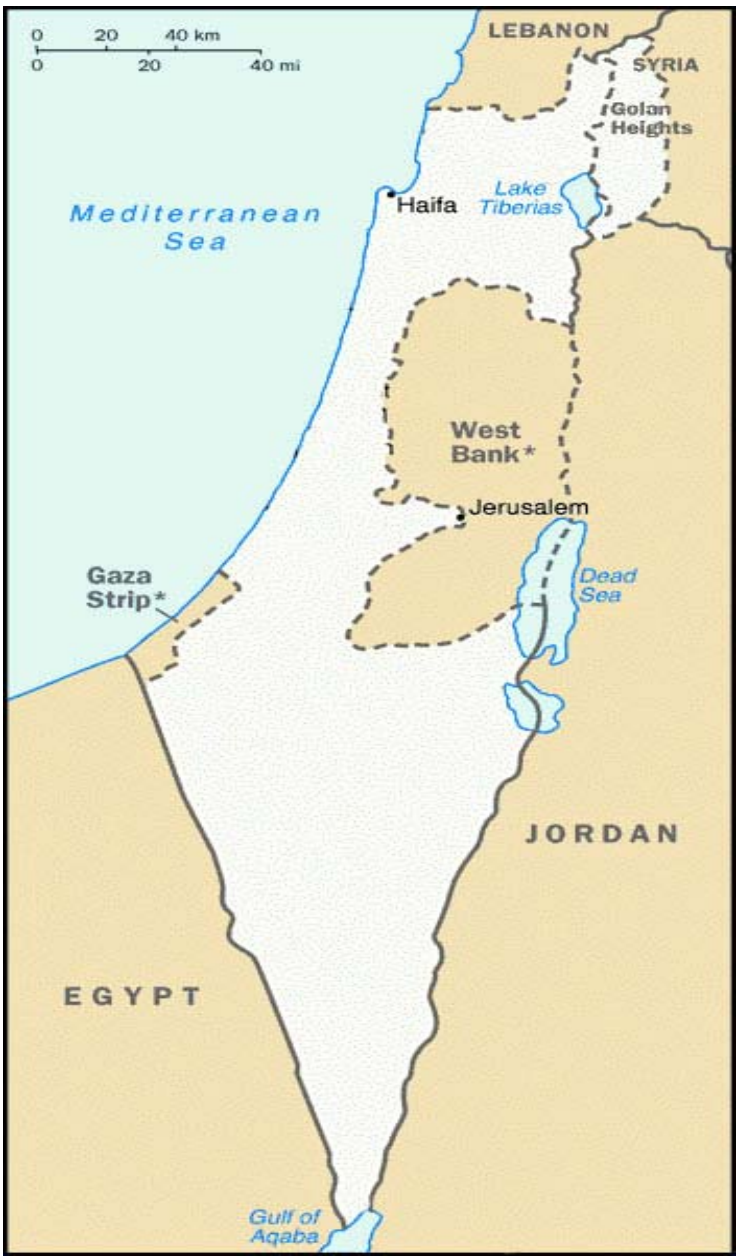
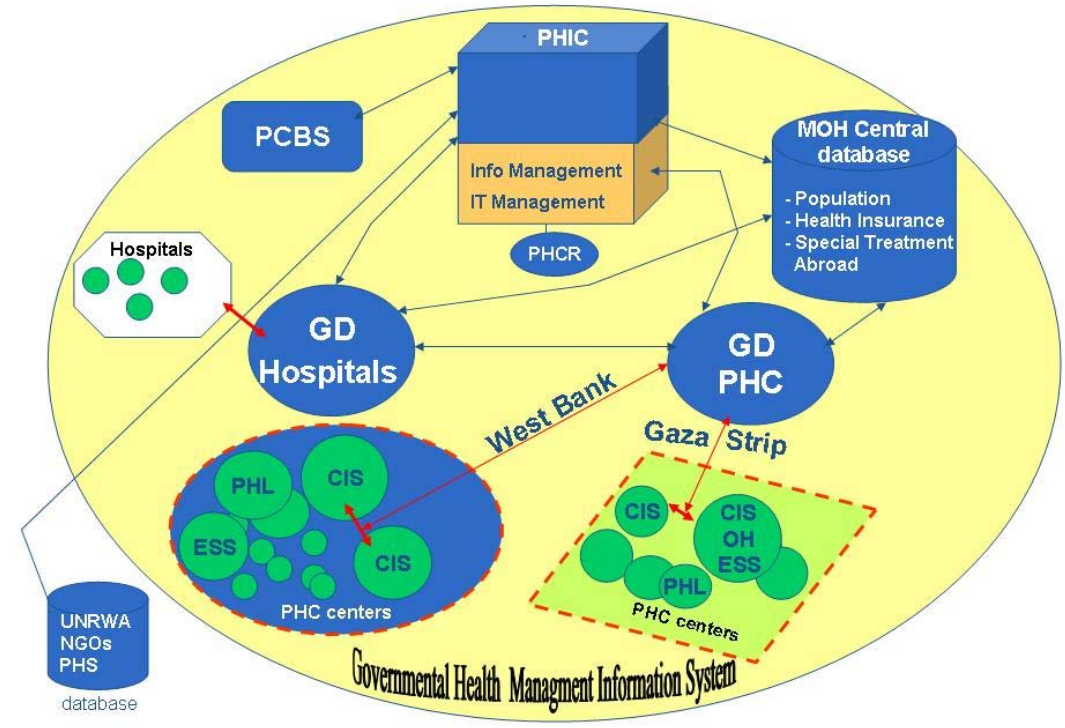


Figure 2: Model of HMIS in the PHC settings –Palestine



Idea and design by Mohammed Al Afifi, Tayser Abu Mourad and Anastas Philalithis

CIS: Clinical Information System, **ESS**: Epidemiological Surveillance System, **GD**: General Directorate, **HPS**: Health Private Sector, **IT**: Information Technology, **MOH**: Ministry of Health, **NGOs**: Non-Governmental Organizations, **OH**: Occupational Health , **PCBS**: Palestinian Central Bureau of Statistics , **PHC**: Primary Health Care, **PHCR**: primary health care registry, **PHIC**: Palestinian Health Information Centre, **PHL**: Public health laboratory, **UNRWA**: United Nations for Relief and Works Agency.

Note:
The clinical information system has been developed by Oracle Designer tools 6i and Oracle Database 9i [29,30]; Occupational health has been development via Visual Basic and Oracle 10g Express [31,32]; The "primary health care registry" was built via Visual Basic 6.0 [32].

Individual determinants of primary health care utilization in Gaza Strip-Palestine

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Abstract

Objectives: Using Andersen's behavioural model of health care use we examined the predictors of primary health care utilization. **Methods:** We interviewed 956 attendees. Users were questioned about predisposing factors: age, sex, martial status, education, work status, household size, life events (psychological and financial), perceived living conditions, health locus of control. Enabling factors included urbanization and household income. Need factors included self rated health. Healthy lifestyles was measured by two variables; smoking and physical activity. Outcome factors were measured by satisfaction of patients with primary health care using EUROPEP total mean scores. **Results:** The study revealed that high age, married and divorced/widowed status, perceived bad living conditions, not being in the labour force, high level of income, poor rated health status and current smoking habit were the main factors associated with high use of primary health care. **Conclusions:** Our findings document the association of individual factors with frequent use of primary health care. We suggest that effective health management, based on addressing equity issues and promoting healthy lifestyles in addition to interventions to overcome the instability of political and economic situation may optimize the utilization of primary health care.

Key words: Gaza Strip, Andersen's behavioural model, Health locus of control, Primary care utilization.

Background

A widely researched model of health service use was first presented by Andersen in the 1960's [1-2] Andersen (1995) emphasises the importance of continued research on health services' use [3]. The model argues that use of health services is a function of predisposing, enabling and need characteristics of individuals. The predisposing component centres on the idea that some people have a greater inclination for using health services than others and this tendency can be predicted from individual characteristics prior to an illness episode. The predisposing characteristics have 3 dimensions demographics, social structure and health beliefs. These three dimensions are seen as the socio-cultural element of the model. The enabling component centres around the idea that people may well be predisposed to using health services but also need some means of obtaining them. The kinds of factors are measured by family source such as income and factors related to community resources, including rural/urban nature of the community in which the family lives. Clearly predisposing and enabling characteristics are necessary for health service use but the individual must also have an illness or perceive it exist [4]. The Andersen model has provided a comprehensive research agenda for health care use studies since its inception while it continues to be relevant in providing a useful analytic framework and starting point for the discussion of the utilization of primary health care (PHC) [3, 5]. In Palestine, the main providers of PHC are the Ministry of Health (MOH) and United Nation for Relief and Work Agency (UNRWA) (6). Research on individual determinants of PHC utilization has never been conducted, while it has emphasized for achieving an effective health strategy [7]. The constructed model allows us to explore how predisposing, enabling and needs factors are related to the utilization of primary health services, taking into account the effect of further predisposing variables [life events, living conditions and multidimensional health locus of control (MHLC)], health promoting lifestyle indicators (smoking and physical activity), and an outcome variable (patients' satisfaction with primary care physician).

Methods

Settings and subjects

The research was carried out in the PHC centres that belong to MOH and UNRWA that are located in the Gaza Strip during September to December 2005. Sample size, sampling and data collection procedures are documented in a previous paper [8].

Study variables and instruments

Dependant variable (Utilization)

The utilization of the PHC provided by the physician was studied in terms of the probability of use (i.e. the proportion of people that utilized the health service at least once during the past 2 months equivalents to at least 3 visits per six months) [9].

Independent variables

Predisposing factors

The variables included age, gender, and marital status. Educational level is a common measure of socio-economic status [10] and this study is defined as "the highest educational degree attained by the patients". Work status was measured as a dichotomous yes/no response. Family size was distributed into quartiles with the first one as the reference category. Life events were measured by two questions formulated for the real situation based on the first and third author's experience of the Palestinian situation: one related to financial and the other related to psychological problems. A psychosocial problem was operationalized in one question related to the perceived living conditions with dichotomous "bad" or "good" response. Also we chose to examine the degree to which people feel that they have an influence over what happens to them by using MHLC questionnaire which asks respondents to indicate on a five-point scale their level of agreement with a number of statements regarding the control of their health [11]. Respondents are given a score for each of the three areas: internal, powerful others and chance. The English source of MHLC were translated and culturally adapted, based on standard [12-13]. Cronbach's alpha was 0.73 (95%CI: 0.70-0.76), 0.87 (95%CI: 0.86-88) and 0.55 (95% CI: 0.51-0.60) for internal, powerful others and chance dimensions respectively.

Enabling factors

Income represents a dimension of socio-economic status (i.e. a material component, rather than a knowledge component) [14]. Income was categorized based on the level of poverty line which reported as 378 US$ for a six-person family [15]. The analyses were also performed with locality of the residence reported by patients. Three localities were included: urban, rural and refugee camps. Since there is overlapping of urban and rural localities, they were combined into one variable and analysed versus the refugee camps that are characterized by different conditions: high population density and bad environmental health conditions [16].

Health needs factors (Health status)

Health status- as a proxy for need- was measured by one indicator, self-rated health, because it is known that subjective assessment of one's overall health- is often used in studies of health outcomes [17]. The question "How is your health in general?" is a validated instrument for the measurement of perceived health status [18].

Healthy lifestyle indicators

Tobacco use was chosen as one indicator to represent lifestyle because it has been shown that there is an association between smoking and both morbidity and mortality from non-communicable diseases in the Eastern Mediterranean Region [19], as of course elsewhere. Physical activity was the second indicator of a healthy lifestyle because WHO has repeatedly stated that physical inactivity is a major worldwide threat [20]

Patient satisfaction with PHC

EUROPEP- which is an instrument used for measuring patient satisfaction of the general practice [21] was used in terms of a total mean score of the 5 point likert scale labeled from "poor =1" to "excellent =5". The validity of using this instrument in Gaza Strip has been recently reported [8].

Statistical analysis

Cross tabulation between PHC utilization and other variables was applied. Bivariate analysis was used to measure crude odd ratios with 95% confidence

intervals. The utility of independent variables in accounting for variability in physician visits was examined via a logistic regression. Adjusted odds ratios (OR) with 95% confidence intervals (CI) were used in logistic regression models. Goodness-of-fit was tested with the Hosmer-Lemeshow test. All statistical calculations were done using software SPSS version 15.0 [22].

Analytical Strategy

After appropriate data screening analyses, the analyses were modelled on the strategies reported elsewhere [23]. Predisposing variables were entered first; enabling variables second, need variables third, health promoting lifestyle fourth. Finally outcome variables were added. The rationale for entering variables in this order is based on the general observation, that need characteristics tend to dominate the proportion of variance in health care use explained by the Andersen model [24]. This sequence of variable entry enables the assessment of impact from need, healthy lifestyles and outcome based variables on health care use, above and beyond the proportion of variance explained by predisposing and enabling variables.

Results : The results of binary association between PHC utilization and the independent variables are presented in Table 1.

Table 1 Bivariate association between the utilization and the independent variables

Factors	Utilization		Crude odd ratio (OR)		
	Low 337 (35.3%)	High 619 (64.7%)	OR	(95%CI)	$P_{(95\%CI)}$
Predisposing					
Age (year)					
18-44 *(Reference category)*	314 (47.5)	347 (52.5)			
≥ 45	23 (7.8)	272 (92.2)	10.70	6.81-16.82	0.000
Sex					
Male *(Reference category)*	176 (37.9)	288 (62.1)			
Female	161 (32.7)	331(67.3)	1.26	0.96-1.64	0.092
Martial status					
Single *(Reference category)*	123 (67.6)	59 (32.4)			
Married	209 (31.0)	465 (69.0)	4.64	3.27-6.59	0.000
Divorced/widowed	5 (5.0)	95 (95.0)	39.61	15.30-102.56	0.000
Education					
Illiterate/primary school *(Reference category)*	15 (15.8)	80 (84.2)			
Preparatory school	22 (22.0)	78 (78.0)	0.67	0.32-1.38	0.071
Secondary school	143 (33.8)	280 (66.2)	0.36	0.20-0.66	0.001
Dip/university	157 (46.4)	181 (53.6)	0.22	0.22-0.12	0.000
Work status					
Haven't work *(Reference category)*	182 (31.7)	393 (68.3)			
Have work	155 (40.7)	226 (59.3)	0.68	0.52-0.88	0.004
Family size					
1st quartile (1-4 persons) *(Reference category)*	87 (45.5)	104 (54.5)			
2nd quartile (5-7 persons)	128 (36.8)	220 (63.2)	1.44	1.01-2.06	0.047
3rd quartile (8 persons)	55 (33.7)	108 (66.3)	1.64	1.07-2.53	0.024
4th quartile (>8 persons)	67 (26.4)	187 (73.6)	2.34	1.57-3.48	0.000
Life events during the last 6 month					
Exposure to financial problems					
No *(Reference category)*	185 (39.2)	287 (60.8)			
Yes	152 (31.4)	332 (68.6)	1.41	1.08-1.84	0.012
Exposure to psychological problems					

No *(Reference category)*	252 (37.4)	421 (62.6)			
Yes	85 (30.0)	198 (70.0)	1.39	1.04-1.88	0.029
Suffering from living conditions					
No*(Reference category)*	246 (37.5)	410 (62.5)			
Yes	91 (30.3)	209 (69.7)	1.38	1.03-1.85	0.031
Health Locus of Control (Mean±SD)					
Internal	22.01±3.54	20.63±3.96	0.92	0.89-0.96	0.000
Power	21.03±5.78	23.12±4.82	1.06	1.03-1.09	0.000
Chance	14.07±3.72	14.15±4.10	1.01	0.97-1.04	0.960
Enabling					
Urbanization					
Urban/Rural *(Reference category)*	259 (36.8)	445 (63.2)			
Refugees	78 (31.0)	174 (69.0)	1.29	0.95-1.77	0.096
Monthly Income (USD)					
≤378 *(Reference category)*	115 (43.9)	147 (56.1)			
379-757	189 (34.2)	363 (65.8)	1.50	1.11-2.03	0.008
≥758	27 (23.9)	86 (76.1)	2.49	1.52-4.10	0.000
Needs					
Self-rated health					
Poor *(Reference category)*	□5 (5.8)	81 (94.2)			
Moderate	□9 (6.6)	128 (93.4)	0.88	0.28-2.71	0.821
Good	72 (26.5)	200 (73.5)	0.17	0.07-0.44	0.000
Very good	251 (54.4)	210 (45.6)	0.05	0.02-0.13	0.000
Health behaviors					
Smoking					
Non-smoker *(Reference category)*	239 (35.4)	436 (64.6)			
Ex-smoker	7 (18.4)	31 (81.6)	2.43	1.05-5.60	0.037
Current smoker	91(37.4)	152 (62.6)	0.92	0.68-1.24	0.570
Physical activities					
No*(Reference category)*	219 (29.4)	526 (70.6)			
Yes	118 (55.9)	93 (44.1)	0.33	0.24-0.45	0.000
Outcomes					
Satisfaction with PHC (Mean±SD)[1]	2.903±0.49	2.983±0.48	1.41	1.07-1.85	0.015

1 Total mean score of EUROPEP which used for evaluation the patients' satisfaction with primary care physician and related health services; validation of this instrument in Gaza Strip was tested (8).

It is observed that most of the independent variables were associated with PHC utilization. Some of the factors that showed significant differences in bivariate analysis lost their importance through the modeling procedures. Health providers and health locus of control (chance) were excluded from multiple logistic regression model because it was linked insignificantly with the PHC utilization. The results of multiple logistic regression analysis between PHC utilization and the independent variables are presented in Table 2. As Table 2 indicates, at the five steps the p values of Hosmer-Lemeshow's chi-square were greater than 0.05. Therefore, we fail to reject the null hypothesis that there is no difference between observed and model predicted values, implying that the model's estimates fit the data at acceptable level. The models were found to account for 33.9%, 34.6%, 38.6%, 39.7% and 39.8% of the variance in probability of semi-annual visits to a primary care physician for predisposing, enabling, need, health behaviour and satisfaction of primary care physician factors respectively. It is observed that work status contributed insignificantly to the prediction of physician visits in the first model while it contributed significantly in the subsequent models. In the final model, the result indicated that the odds of PHC utilization was 1.3 times higher among elderly (≥45 years) versus younger counterparts ($p<0.001$; 95%CI=2.06-6.46). Although females were found to use PHC more than male (OR =1.16; 95%CI=0.76-1.78), the utilization was independent of the gender distribution. Married patients reported 3.61 times higher utilization of PHC services compared to the utilization among single patients ($p<0.001$; 95%CI=2.30-5.66). Also, the divorced/widowed reported 9.23 times higher utilization of PHC services compared to the utilization among the single ones ($p<0.001$; 95%CI=3.07-27.78). The educational level was negatively associated with utilization before adjustment, but when taking into account other independent variables, the educational gradient disappears. The odds of PHC utilization was 0.47 times lower among patients who have a job versus workless ones ($p<0.001$; 95%CI=0.29-0.75). The significant positive association between utilization and household size did not persist when adjusting for the other variables. Patients living in poor conditions reported 1.52 times higher utilization of PHC services compared to the utilization among the ones who did

not report poor living conditions ($p<0.05$; 95%CI=1.04-2.22). The study reveals an association between the power locus of control and the use of the PHC services ($p<0.001$), while the OR which is closest to one (OR=1.05) and the narrow confidence interval (95%CI =1.01-1.08) revealed

Table 2: Logistic regression of predisposing, enabling, need, and health behaviors and outcomes factors on primary health care utilization

Factors	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
	OR[1]	(95%CI)		OR[2]	(95%CI)		OR[3]	(95%CI)		OR[D]	(95%CI)		OR[4]	(95%CI)	
Age (year)		lower	upper		lower	upper		lower	upper		lower	upper		lower	upper
≥ 45 *versus* 18-44	5.69***	3.32	9.75	5.32***	3.09	9.15	3.48***	1.96	6.19	3.69***	2.05	6.62	3.69***	2.06	6.64
Sex															
Female *versus* male	0.97	0.66	1.42	0.96	0.65	1.41	0.93	0.63	1.39	1.17	0.76	1.79	1.163	0.76	1.78
Martial status															
Married *versus* single	4.43***	2.89	6.78	4.37***	2.85	6.70	3.49***	2.24	5.43	3.60***	2.29	5.65	3.61***	2.30	5.66
Divorced/widowed *versus* single	12.37***	4.31	35.48	11.52***	3.99	33.20	8.37***	2.84	24.67	9.18***	3.06	27.56	9.23***	3.07	27.78
Education															
Preparatory school *versus* Illiterate/primary	1.15	0.47	2.82	1.10	0.45	2.73	0.97	0.38	2.48	1.03	0.40	2.67	1.06	0.41	2.74
Secondary school *versus* Illiterate/primary	1.20	0.57	2.55	1.10	0.52	2.35	1.16	0.53	2.53	1.20	0.54	2.63	1.21	0.55	2.66
Dip/university *versus* Illiterate/primary	1.02	0.47	2.20	0.85	0.39	1.88	0.93	0.41	2.10	0.97	0.43	2.21	0.99	0.43	2.24
Work status															
Have work vs haven't work	0.67	0.45	1.04	0.68*	.445	1.04	0.60*	0.38	0.92	0.47**	0.293	0.74	0.47**	0.29	0.75
Family size															
2nd quartile *versus* 1st quartile	1.41	0.94	2.13	1.43	0.95	2.16	1.25	0.82	1.91	1.22	0.80	1.87	1.23	0.81	1.89
3rd quartile *versus* 1st quartile	1.39	0.82	2.36	1.37	0.80	2.32	1.13	0.65	1.96	1.13	0.65	1.97	1.16	0.66	2.02
4th quartile *versus* 1st quartile	1.54	0.92	2.58	1.49	0.89	2.50	1.25	0.73	2.13	1.25	0.73	2.14	1.26	0.73	2.16
Life events during the last 6 month															
Exposure to financial problems (yes *versus* no)	1.29	0.94	1.77	1.28	0.93	1.75	1.18	0.85	1.64	1.17	.84	1.63	1.17	0.84	1.63
Exposure to psychological problems(yes *versus* no)	1.04	0.72	1.50	1.07	0.74	1.54	1.05	0.72	1.52	1.05	0.72	1.53	1.06	0.72	1.55
Suffering from living conditions(yes *versus* no)	1.45*	1.01	2.07	1.52*	1.05	2.19	1.49*	1.02	2.17	1.51*	1.03	2.20	1.52*	1.04	2.22
Health Locus of Control (Mean±SD)															
Internal	0.96	0.92	1.01	0.96	0.91	1.01	0.96	0.91	1.01	0.96	0.91	1.01	0.96	0.91	1.01
Powerful others	1.05**	1.02	1.08	1.05**	1.01	1.08	1.04*	1.01	1.08	1.05**	1.02	1.09	1.05**	1.01	1.08
Urbanization															
Refugees *versus* urban/rural				1.16	0.80	1.70	1.18	0.80	1.74	1.17	0.79	1.73	1.18	.80	1.75
Monthly Income															
379-757 *versus* ≤378				1.49*	1.03	2.14	1.58*	1.09	2.30	1.58*	1.09	2.30	1.57*	1.08	2.28
≥758 *versus* ≤378				1.61	0.87	2.96	1.64	0.87	3.09	1.85	0.97	3.52	1.82	0.95	3.46
Self-rated health															
Moderate *versus* poor							1.93	0.56	6.64	2.098	0.60	7.32	2.07	0.59	7.24
Good *versus* poor							0.68	0.24	1.97	0.739	0.25	2.17	0.74	0.25	2.16
Very good *versus* poor							0.31*	0.12	0.89	0.34*	0.12	0.98	0.34*	0.12	0.97
Health behaviors															
Ex-smoker *versus* non-smoker										2.22	0.77	6.43	2.15	0.74	6.24
Current smoker *versus* non-smoker										2.07**	1.28	3.34	2.06**	1.28	3.33
Physical activity (yes *versus* no)										1.06	0.72	1.56	1.05	0.71	1.55
Satisfaction with PHC (Mean+SD)													1.18	0.84	1.68
Cox & Snell R^2	0.247			0.252			0.281			0.289			0.290		
Negelkerker R^2	0.339			0.346			0.386			0.397			0.398		
χ^2 *(Hosmer-Lemeshow)*	16.627			6.967			7.216			4.594			6.835		
P	0.125			0.540			0.513			0.800			0.555		

1 Adjusted odd ratio for predisposing factors, 2 Adjusted odd ratio for predisposing and enabling factors, 3 Adjusted odd ratio for predisposing, enabling and need factor, 3 Adjusted odd ratio for predisposing, enabling, need and health behavior factors, 5 Adjusted odd ratio for predisposing, enabling, need, and health behavior and outcome factors.

** p<0.05, ** p<0.01, *** p<0.001*

weak positive differences. Patients residing in refugee camps were found to be more frequent users of PHC, while the urbanization gradient disappeared when adjusting for other variable. Patients having monthly income of 379-757 US$ reported 1.57 times utilization of PHC services compared to the utilization among the ones reporting household monthly income below the poverty line (≤378 US$). The odds of PHC utilization was 0.34 times lower among those who perceived their health as very good verus those who self reported poor health ($p<0.05$; 95%CI=0.12-0.97). The reported physical activity includes home exercise (33.6%), playing football (28.0%), running/waking (18.5%) and others (19.9%). The significant negative association between these activities and utilization did not persist when adjusting for the other independent variables. In contrast, the insignificant positive association between current smoking and PHC utilization before adjusting for the independent variables turned statistically significant after adjustment. ($p<0.01$; OR 2.06: 95%CI=1.28-3.33). A significant positive association between satisfaction and utilization in crude bivariate analysis disappeared when taken into consideration the overall effect of the independent variables.

Discussion

The final model was able to account for significant variability in PHC use. About 40% of the variance was accounted for by the model. The relationship between age and the probability of the use of health services indicates that there is a difference in the likelihood of making use of the services of the physician, among different age groups, with the older persons being more likely to have a contact with the health service. The gradient persists when adjusting for cofounders. Our result of strong positive association between age and PHC utilization can be explained by the fact that elderly are more likely to suffer from chronic diseases which need more care [25]). Women are also more frequent users of heath care in several studies [26-27] including Arab ones [28] and the adjustment for cofounders in our study indicated insignificant association. Early marriage- which predominates in Palestine- and early childbearing are considered a primary factor leading to increase risk of complications of pregnancy and childbirth for women [29], while for men the

married status could increase fathers' responsibilities towards securing good living conditions for the family under the bad circumstance that the Palestinians nowadays are living in. This could increase the burden and contribute to increased stress and its psychosomatic complications that ultimately increase the use of PHC services. In fact, the widowed and the divorced could also increase psychological problems, taking in consideration that the crude divorce rate in Gaza strip is about 1.2/1000 [30]. Our finding concords with other studies (31-32). The gradient of education disappeared when adjusting for independent variables, unlike a previous study [21] which found that frequent attenders were more likely to have lower educational status. The contradiction could be due to different culture and settings. The higher educational groups in Gaza Strip are more likely to see a specialist, resulting in reducing their proportion as heavy users of PHC. A person's labour force status has importance for physician utilization. Our result of the non-employed being associated with high use of PHC may be explained by bad personal health. This result is in line with previous report [33]. A variety of factors have been identified as the leading causes of poor utilization of PHC services including large family size [34], while in our study there is insignificant positive association. This needs more investigation, taking in consideration that increased family size under the poor economic conditions in the Gaza Strip could increase the utilization for MOH or UNRWA clinic rather than to seek help from the private (for-profit) sector. The gradient of living conditions persists when adjusting for other factors, indicating that Israeli measurements have had a devastating impact on the economic and psychologic situation and result in increased poverty, frustration and pessimism [35]. This status of Palestinian living conditions is in violation to Article 11 of the International Covenant on Economic, Social and Cultural Rights which called for "*the right to an adequate standard of living conditions…*" [36]. Our finding of the higher powerful health locus of control being associated with high use of PHC is in line with the theory [37], while associated depression and anxiety with an external locus of control could support our findings [38]. The insignificant positive association between PHC utilization and urbanization level indicates that the same geographical conditions apply in both. There is evidence

that patients of lower socioeconomic status are least likely to report health seeking behaviours [39], this is similar to our findings. Higher income (>758US$) showed no association with utilization and this could be explained by the rich people being more likely to seek health care from specialists and the private sectors. Good primary care experience was associated with better self-reported health [40]. The study showed that the higher self rated health, the higher the use of PHC and this is in line with other studies [41-42]. The association between smoking and prevalence of non communicable diseases [19] could explain the positive association of current smoking and utilization, while an increase in physical activity could contribute to reaching the negative association with utilization. Satisfaction was insignificantly positively associated with utilization, although a few studies have demonstrated an association [43].

Strengths and limitations

Bias may have occurred in self reporting visits to primary health physicians especially among older patients, since older age was significantly associated with underreporting of PHC visits [44]. Health services including physician characteristics have not been addressed because our focus was on individual determinants. Further cross-sectional community-based studies of health care utilization are recommended.

Conclusion:

Our findings document the association of individual factors with frequent use of PHC. We suggest that an effective health management, based on addressing equity issues and health promoting life style in addition to real intervention to overcome the instability of political and economic situation may optimize the PHC utilization.

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Key Messages

This paper can guide the policy makers for an effective management and wise use of the resources to optimize the PHC utilization.

Also, it is a start point of health care utilization research in Palestine

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Translating and validating an instrument for measuring patients' satisfaction with primary care physicians in Palestine: The case of EUROPEP

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Abstract

The use of standardized instruments for assessment of patients' satisfaction from primary health care services is regarded as an important component for the improvement of primary health care quality and research capacity. **Objectives:** This paper reports on the validation and translation into Arabic of the English language version of EUROPEP which is used for the assessment of satisfaction with general practice care. The aim of preparing an Arabic language version of EUROPEP was to evaluate such care as perceived by Palestinian patients attending general practitioners services in various settings in the southern governorates of Palestine (in the Gaza Strip). **Methods:** Permission to translate EUROPEP was given by its authors. This was translated into Arabic and backward translation and cultural adaptation procedures were followed to assure that the Arabic version conformed with the English version. Validity and reliability tests were applied. The questionnaire was used in 956 interviews with patients exiting the primary care services. Exploratory factor analysis was performed to identify the underlying dimensions of the Arabic version of EUROPEP. **Results:** Internal consistency was found to be satisfactory for the dimensions of clinical behaviour and organization of care. Exploratory factor analysis extracted six important dimensions, which cover different aspects of general practice care. **Conclusions:** The Arabic version of EUROPEP is a valid instrument for evaluating patients' opinions about primary health care provided by general practitioners in Palestine. Testing and using EUROPEP in other Arab countries is recommended.

Key words: patient, evaluation, opinion, validity, reliability, Palestine, Gaza Strip Governorates

Background

Evaluation of Primary health care (PHC) focuses usually on structural and process measures while aspects related to the views of patients are attracting more attention recently and results of relevant research have been reported elsewhere (1-4). There are different studies in Arab countries about patient's satisfaction towards PHC having used different kinds of instruments (5-8). In European countries EUROPEP is receiving wider attention recently following its creation by EQUIP, the quality of care network of WONCA Europe, the European Society of General Practice Family Medicine. EUROPEP has been validated and standardized in different international settings and is used for collecting information regarding the patients' evaluation of the care provided by general practitioners (GPs) (9). It provides relevant feedback to the GPs, to health care policy makers at different levels and even to the patients themselves (9-10). Several European studies have been published reporting the use of this instrument (11-18). In Palestine, current health policy focuses on the important of PHC and on care provided by GPs. However, to our knowledge, there is a lack of standardized and validated instruments to evaluate the care provided by GPs in this country. This paper reports on the procedure of translating and validating EUROPEP into Arabic as a first step before applying this instrument in PHC settings in Palestine and with the ultimate objective of improving the quality of care provided by GPs.

Methods

Instrument

EUROPEP consists of 23 items or aspects of care explored by using a five point Likert scale with the extremes labelled as "poor" and "excellent". The questionnaire covers two main aspects: clinical behaviour (item 1-16) and organization of care (item 17-23). Further, EUROPEP issues can be divided into five different dimensions of medical and technical care, the doctor-patient relationship, information and support, availability and accessibility of care and organization of services (19).

Translation

Permission for translating EUROPEP into Arabic was obtained from the instrument's developers. Forward and backward translation and cultural adaptation were conducted according to the methods described by Guillemin et al. 1993 (20) and the minimal translation criteria (21). The Arabic language version was pilot-tested using a cognitive debriefing method with ten patients (22-23).

Settings and target population

The research was carried out in the PHC centres that belong to the Ministry of Health (MOH) or to the United Nations Relief and Works Agency (UNRWA) that are located in the Southern Governorates of Palestine (Northern, Gaza, Middle Zone, Khan Younis and Rafah). The study was carried from September 1st to December 30th, 2005. The sample was drawn from patients attending GPs services in theses centres and the required sample size of 1067 was determined based on a requirement for 95% confidence limit with 3% maximum error of estimate and a conservative estimate of proportion of 50% (24). The study sample was multi-stratified, the first stratum being the governorates, the second being the localities and the third the clinics. The demographic data of 2005 provided by the Palestinian central bureau of statistics were used to calculate the percentage of population in each stratum (25). Clinics with the highest visits per day were selected from each locality (Table 1). A random sample of patients attending PHC was drawn on a daily basis using numbers assigned to available chairs as a sample frame. Patients were excluded form the study if they were severely ill and less than 18 years of age. The interview was conducted after the end of the patient's consultation with the general practitioner (exit interview) in order to reflect recent information. The interview was conducted by the first author or a well-trained expert.

Validation

Content validity is used to assess the degree to which an instrument measures all relevant aspects of the conceptual domain intended to be measured (26). Content validity was done by using a panel of 12 medical and pubic health research experts who received the objectives of EUROPEP together with its final Arabic

version. They gave their feedback through a scale ranging from "excellent" to "poor" for each item. To check the structure validity of the EUROPEP in Arabic, an exploratory factor analysis was used using principal component extraction and varimax rotation in order to identify the factors that comprise the Arabic version of EUROPEP (27). We considered levels of 0.40 as the minimum accepted factor loading. Cronbach's alpha was used to assess the reliability of the questionnaire by measuring internal consistency through checking the components of the questionnaire against each other (28).

Ethics

The Helsinki Committee of the Palestinian MOH granted approval for carrying out this research. Approval for carrying out the field work and collecting the data was obtained from the general directorate of the governorates of the areas concerned and from the UNRWA field health program. A consent letter was presented to the patients prior to the interview and they were given the right to accept or reject participation in the study. Verbal clarifications were given if required.

Results

Translation

During the pilot testing the word “thoroughness” as translated into the word “comprehensiveness” in Arabic was not understood by some patients, and after further discussion it was reworded into “examination of whole patient’s body”. The final Arabic version was completed by participants without any additional external explanation being sought or given.

Response rate

A total of 974 patients accepted to answer the questionnaire giving a response rate of 91.3%. The condition of 18 patients deteriorated during the interview and the session was interrupted, and these were subsequently excluded from further analysis. Therefore, the analysis was carried out on the data from 956 patients.

Validation

All 12 experts rated each item of EUROPEP in Arabic as excellent, giving high level of content validity. The internal consistency of all items of EUROPEP in Arabic was very good, Cronbach's alpha being 0.83 (95% CI: 0.81-0.84). Internal consistency was found to be higher for the clinical behaviour dimension [(item 1-16); 0.80 (95%CI: 0.78-0.82)] than the organization of the care dimension [(item 17-23); 0.61 (95% CI: 0.54-0.62)]. The exploratory factor analysis yielded six factors responsible for 56% of the variance with eigenvalues over one and rotation converged in 11 iterations. The six extracted factors were labelled as follows: doctor-patient relationship, commitment of physician, information and support, medical services, organization of care and its availability, and accessibility. Internal consistency for each factor was found to be satisfactory; Cronbach's alpha more than 0.60 (Table 2).

Discussion

The improvement of quality in PHC in Arab countries requires more than political support, administrative support and funding; it also requires research capacity and reliable instruments for evaluating primary care acceptance in the population and primary care quality of care. This is in line with the discussion currently going on in European settings and with research reports reporting on the results of studies carried out by the European General Practice Research Network (EGPRN) and WONCA Europe (29-30). Although there are several instruments and questionnaires that can be used for evaluating PHC services and they have been reported in the literature, EUROPEP was chosen because it is a well tested instrument with implementation in several countries providing information at an international level. In our study, a high responses rate was obtained and this can be attributed to the fact that recruitment of the subjects took place immediately after visiting the GPs and also the small number of questions, thus avoiding drop outs during the interview. The Arabic language EUROPEP has a higher total response rate than equivalent European studies. The total response rate was reported as being 76.5 % in Turkey (15), 67% in Iceland and 90% in Norway (18). The response rate for each item for the 956

respondents was also excellent when compared to the European response rates reported by other researchers. The response rate for each EUROPEP item in different studies ranges between 71.5% and 98.5% (9). The validation process revealed a satisfactory level for Cronbach's alpha for the Arabic language EUROPEP. The part of the questionnaire relating to clinical behaviour seemed more reliable than the part related to organization of care, results similar to that of other studies in Europe (9). Nevertheless, a level of 0.60 for Cronbach's alpha or higher is usually accepted (31). The exploratory factor analysis extracted six dimensions covering different aspects of general practice care. However, concerns have been expressed about the validation process and particularly the test-retest reliability or reproducibility of the questionnaire. This was not performed in the study and thus, we are not certain about the ability of the instrument to measure the strength of association for determining stability of EUROPEP's results over time. Despite these concerns, the Arabic language version of EUROPEP as translated and validated in this study is expected to be a practical instrument for evaluation of general practice care in PHC settings particularly from the patient's point of view. Results of the study in Palestine and specifically in the Gaza Strip governorates will be subsequently reported. Testing and using EUROPEP in other Arab countries are recommended.

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Table 1: Sample breakdown (n=1067) into different localites of each governorate and selected clinics

Governorate	Percentage of population*	Sample size 1st stratum	Locality	Percentage of population*	Sample size 2nd stratum
Northern	19.00	0.19x1067=203	Refugee	33	0.33x203=68
			Rural	4	0.04x 203=8
			Urban	63	0.63x203=127
Gaza	35.19	0.3519x1067=375	Refugee	17	0.17x375=64
			Rural	2	0.02x375=7
			Urban	81	0.81x375=304
Middle Zone	14.48	0.1448x1067=155	Refugee	66	0.66x155=102
			Rural	3	0.03x155=5
			Urban	31	0.31x155=48
Khan Younis	19.42	0.1942x1067=207	Refugee	18	0.18x207=36
			Rural	11	0.11x207=24
			Urban	71	0.71x207=147
Rafah	11.91	0.1191x1067=127	Refugee	49	0.49x127=62
			Rural	9	0.09x127=12
			Urban	42	0.42x127=53

* Based on PCBS 2005 (34).

1 UNRWA= United Nations for Relief and Works Agency

2 MOH= Ministry of Health

Table 2: Exploratory factors analysis for the Arabic EUROPEP: Rotated Component Matrix for 6 factors

Order*	Dimensions	Loading factors	Eigenvalues	Explained Variance (%)	Cronbach's alpha (CI 95%)
	I. Doctor-patient relationship		2.02	8.77	0.68 (0.64-0.71)
2	Interest in your personal situation	0.67			
3	Making it easy for you to tell him or her about your problem	0.68			
5	Listening to you	0.77			
	II. Commitment of physician		1.39	6.05	
6	Keeping your records and data confidential				
	III. Information and support		3.43	14.93	0.75 (0.73-0.77)
4	Involving you in decisions about your medical care	0.66			
7	Quick relief of your symptoms	0.62			
8	Helping you to feel well so that you can perform your normal daily activities	0.52			
12	Explaining the purpose of tests and treatments	0.66			
13	Telling you what you wanted to know about your symptoms and/or illness	0.73			
14	Helping you deal with emotional problems related to your health status	0.44			
17	Preparing you for what to expect from specialist or hospital care	0.50			
	IV. Medical service		1.71	7.43	0.62 (0.57-0.65)
9	Thoroughness	0.49			
10	Physical examination of you	0.74			
11	Offering you services for preventing disease (e.g. screening, health checks, immunizations)	0.43			
18	The helpfulness of the staff (other than the doctor)	0.42			
23	Providing quick services for urgent health problems	0.53			
	V. Organization of care and availability		2.57	11.19	0.67 (0.64-0.70)
1	Making you feel you had time during consultation	0.66			
15	Helping you understand the importance of following his or her advice	0.67			
16	Knowing what s/he had done or told you during contacts	0.65			
19	Getting an appointment to suite you	0.52			
22	Waiting time in the waiting room	0.61			
	VI. Accessibility		1.68	7.32	0.67 (0.62-0.70)
20	Getting through to the clinic on phone	0.82			
21	Being able to speak to the GP on the telephone	0.84			

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An evaluation of patients' opinions of primary care physicians: the use of EUROPEP in Gaza Strip-Palestine

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Version : Corrections CL, 26 May 2007 and 29 May 2007 and Ada Markaki 30-5-2007 and Prof. Philalithis 31-5-2007.**Abstract**
Objective: To identify the level of patients' satisfaction with primary care physicians.
Data: An-exit interview using a standardized questionnaire (EUROPEP) and background variables. A total of 956 patients in fifteen primary health care clinics in Gaza Strip participated. **Outcome measures**: Positive patient satisfaction (good and excellent ratings in the EUROPEP Index). **Results:** The mean percentage of positive satisfaction with medical services was poor (41.8%). The poorest performance was recorded for: getting through to the clinic on the phone, being able to speak to physician on the telephone, time spent in waiting rooms and helping the patient deal with emotional problems. The comparison between clinical behaviour dimension and organization of care showed that clinical behaviour was evaluated higher. **Conclusions**: Palestinian patients expressed overall dissatisfaction with services provided by primary care

physicians. These findings present a real challenge for Palestinian authority policy makers and administrators in terms of designing appropriate quality improvement strategies.

Key words: EUROPEP, satisfaction, primary health care, physician

Introduction

Gaza Strip is an elongated area, located in a semi-arid region of the Middle East, bordered by Egypt from the south, the Negev Desert from the east, and the Mediterranean Sea from the West (Figure 1). The total surface area is 365 km^2 [(1)] and its population has been estimated to be 1,337,238 for the mid-year 2004[(2)]. The Palestinian National Authority (PNA) has adopted the primary health care (PHC) strategy for improving quality of care, since 1994[(3)]. Since then, a number of services and programs have been instituted as a means of meeting the demands, as well as fulfilling the country's commitment to the World Health Organization's goal of "Health For All By The Year 2000"[(4)]. The main health providers for PHC services in Palestine are the Ministry of Health (MOH) and the United Nation Relief and Works Agency (UNRWA)[(5)].

The quality of health services has traditionally been based on professional practice standards. Recently, it was defined as an observed quality which focuses merely on structural and process measures, while the perceived quality relates to the views of patients, with the latter one attracting more importance [(6-10).] . Patients' perception about health care is viewed as the most important indicator for measuring quality of health care and a critical component of performance improvement and clinical effectiveness [(11-14)]. A European instrument (EUROPEP) that identifies patients' priorities with respect to general practice care has been established with the main aim to facilitate international comparison and improve the sensitivity of general practice to patients' needs [(15)]. The importance of customer satisfaction for a strategic health plan was emphasized in a recent study regarding Palestinian patients' satisfaction with primary health care services [(16)]. Evaluating patients' opinion has been considered an ultimate criterion to what extent health care meets all patients'

needs [15, 17] and for that purpose, the EUROPEP instrument has been translated and validated into Arabic [18].

This study reports experiences gained through patient evaluations' of medical care provided by primary care physicians (PCPs) in Gaza Strip-Palestine and discusses their implications on policy and primary health care system reform. Study objectives included answering the following research questions:

1. What are the general characteristics of patients consulting PCPs?
2. What is the level of patients' satisfaction towards different aspects of medical care provided in PHC settings?
3. Does patients' level of satisfaction depend on the type of health provider (MOH versus UNRWA)?

Methodology

Setting

A cross-sectional study, targeting attendees of primary care physicians throughout 10 PHC centres that belong to MOH and 5 PHC centres belonging to UNRWA in Gaza Strip, during the period September 1st to December 30th, 2005.

Instrument

EUROPEP has been translated and validated into Arabic [18] in order to measure patient satisfaction with primary care physicians and to provide relevant feedback to physicians, patients and health care policy makers [19-20]. This European instrument consists of 23 questions, using a five point Likert scale ranging from *"1=poor"* to *"5=excellent"*. A conservative sample size of 1,067 was based on power calculation. A more detailed description of sample size, sampling and data collection has been reported in a previous article [18].

Ethics

Approval to carry out this research study was granted by the Helsinki Committee, as well as MOH and UNRWA. A consent letter was given to patients prior to the interview and patients had the option of accepting or rejecting participation in the study.

Statistical Analysis

SPSS 15.0 [21] and EPIINFO [22] were used for data analysis. Counts and proportions were used to describe recoded answers for each question *("satisfied" 4-5, "non-satisfied" 1-3)* [23]. The average response equivalent to *"3"* was added to the negative category, based on a previous similar study considering neutral answers as *"unsatisfied"* [24]. Mean ± standard deviation and (minimum-maximum) statistics were preferred to present continuous variables. Independent samples t-test and the non-parametric Mann-Whitney were used to compare continuous variables between two groups (e.g. age). Associations and differences between categorical variables were assessed by Pearson's Chi-Square [25-26].

Results

Sample

A total of 24 attendees were excluded from the data file because they were not actual patients, having visited the clinic either accompanying children or for prevention reasons. A total of 69 patients refused to participate in the study and 18 patients were not able to complete all 23 items and therefore, were excluded. Subsequently, data of a total 956 patients were analysed. **Table 1** shows distribution of background variables across PHC providers. It is evident that patients consulting UNRWA clinics were older (39.3 year-old) than those consulting MOH clinics (36.9 year-old); t=-2.6, P<0.05. Patients from both clinics had the same level of education, while there were more women (52%) consulting PCPs. Male patients consulted mostly UNRWA physicians rather than MOH physicians, but this association between gender and provider did not reach a significant level (χ^2=3.99, P=0.06). Most patients were married (70.4%)

with those consulting MOH physicians being statistically significant more than those consulting UNRWA physicians (χ^2=25.2, P≤0.001).

Evaluation of patients

Table 2 presents patients' evaluation of all 23-items. Undoubtedly, the mean percentage of positive satisfaction among patients was poor (41.8%). The poorest rated items were the following: *"getting through to the clinic on the phone"* (3.0%), *"being able to speak to the physician on the telephone"* (4.9%) *"time spent in the waiting rooms"* (22.7%) and *"helping the patient to deal with emotional problems related to his or her health status"(23.0%)*. The highest rated items were *"physical examination of the patient"* (68.2%), *"making it easy for patient to tell him/her about his/her problems"* (58.4%), *"telling patient what he/she wanted to know about his/her symptom and/or illness"* (58.1%) and *"listening to patient"* (57.7%). The comparison between clinical behaviour dimension (items 1-16) and organization of care (items 17-23) showed that clinical behaviour was evaluated higher (mean percentage of positive satisfaction 46.9%) than organization of care (mean percentage of positive satisfaction 29.9%) with P<0.01.

Differences between health providers

The mean percentage of positive satisfaction with all 23-items among both MOH patients (42.5%) and UNRWA patients (40.3%) was poor. The poorest items were *"getting through to the clinic on the phone"* (2.6% for MOH and 3.6% for UNRWA), *"being able to speak to the physician on the telephone"* (5.2% for MOH and 4.0% for UNRWA). *"Helping you deal with emotional problems"* (23.3%) was the third poorest item evaluated by MOH patients while *"getting an appointment that suited you"* (19.4%) was the third poorest item evaluated by UNRWA patients. The highest item was *"physical examination of the patient"* (67.9% for the MOH and 69.0% for UNRWA).

The study revealed that MOH PCPs, as compared to their counterparts at UNRWA, were quicker to offer relief of symptoms (χ^2= 17.4, P<0.001),

explained more to the patient about symptoms and illness (χ^2= 10.7, P<0.01), helped more the patient feel well so that he or she can perform normal daily activities (χ^2= 10.6, P<0.01) and explained more the purpose of tests and treatments (χ^2= 8.5, P<0.01). Patients consulting UNRWA PCPs reported more satisfaction regarding what to expect from specialist or hospital visits (χ^2= 4.6, P<0.05) and provision of quick services for urgent health problems (χ^2= 4.3, P<0.05). Generally, patients consulting MOH PCPs reported more mean percentage positive satisfaction, but this overall positive satisfaction difference was not statistically significant (χ^2= 0.45, P>0.05).

Discussion

The study sample

To our knowledge, this is the first study evaluating patient satisfaction by an internationally validated instrument in Gaza Strip with a relatively high response rate, indicating strong intentions for participation. The socio-demographic characteristics of the 956 participants revealed that the mean age for those consulting PCPs in the Gaza Strip was 37.6 years. This mean age is lower that the mean age of PHC attendees in Europe, which was 50 years of age [20]. The lower age in Gaza Strip can be explained by the different population structure between the two communities. As expected, the large majority of patients consulting PCPs were women. This finding is in line with other international studies [27] and may be attributed to the fact that women have different physiology than men, characterized by childbearing.

Primary findings

The study revealed that married persons were consulting more PCPs, a finding that merits further investigation, especially at MOH clinics The free of charge service system may explain why widowed and divorced patients consulted more UNRWA physicians. In general, Gaza Strip patients were negative about the care they received, which means that medical care did not meet patients' expectations, unlike the case of European patients [20]. Physicians' clinical skills,

including listening, physical examination and explanation of symptoms, were positively evaluated by patients, while issues on practice management, including waiting time and accessibility were negatively evaluated. This may indicate an organizational problem rather than a professional skills deficit. The poorest rated items in this study were in line with those from previous studies [28-30].
Even though there was no statistically different mean percentage of patients' total satisfaction between MOH and UNRWA attendees, when comparing item-by-item, there was a significantly higher mean percentage satisfaction for MOH patients regarding quick relief of symptoms, receiving information about symptoms, helping the patient feel well, explaining the purpose of tests and treatments and getting a suitable appointment. This finding might be explained by the high number of casualties, resulted from the ware situation, encountered by MOH physicians, making them more responsive, informative and cooperative with patients seeking their care. *"Preparing patients for specialist visit"* and *"providing quick services for urgent health problems"* were two items rated higher by UNRWA clinic patients. This can be attributed to emergency preparedness since the UNRWA medical system is characterized by continuous international support. These findings are remarkable in light of the fact that MOH provides fee-for-services PHC through health insurance, while UNRWA provides free of charge PHC for Gaza Strip refugees.

Discussing the results under the light of other studies

Another interesting finding was relevant to physicians' capacity to help patients deal with emotional problems, ranked as the fifth poorest item. This result is in accordance with findings from another study that physicians in Gaza Strip have difficulty detecting mental health problems and are in need of relevant training [31].On the contrary, similar studies from European countries revealed that the same item received a rating of 85%, 87%, 76%, 71% and 60.2% in Germany, Slovenia, the Netherlands, UK and Turkey respectively [30, 32-35].

Strengths and limitations

Inter-observer error may have occurred and an attempt was made to reduce this bias by limiting the number of data collectors/observers to two well-trained, university-graduates. Sampling bias seems to have been avoided, since patients from different geographic areas were sought and a large number of patients representative of all patients consulting primary care physicians in PHC settings in the Gaza Strip were involved. .

Implications on policy and primary care system

Customer satisfaction is an important measure of service quality in medical care systems. From a management perspective, satisfied patients are more likely to maintain a consistent relationship with a specific provider and follow specific medical regimens and treatment plans. Sources of patient dissatisfaction can be adequately addressed by an organization, thus contributing to the organization's total quality management plan [24,36].

Items in the organization of care dimension received a lower score from Gazean patients, indicative of the need for re-organization to change patients' perceptions of health care differences and inequalities between the two Palestinian regions.. Accessibility has been identified as an important priority and national health authorities should undertake certain actions for improving access to PHC sites and services. This study also underlines the importance of patients' point of view in increasing medical staff's awareness about their strengths and weaknesses, thereby contributing to increased responsiveness.

Conclusions

Palestinian patients expressed dissatisfaction with the organization of PHC services . This study arrives at a time when Palestinian health care reform is under way and will contribute to quality improvement of primary health care services in the Gaza Strip. MOH and UNRWA health authorities should adopt routine evaluation of PHC services with the use of EUROPEP.

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Table 1: Distribution of background variables by health providers

	MOH* (n=653)	UNRWA** (n=303)	Total (n=956)
Age (year)			
Mean	36.9	39.3	37.6
Standard Deviation	13.5	13.2	13.4
Range	(18-67)	(18-67)	(18-67)
	(T=-2.50 , P<0.01)		
Sex			
Male	303 (46.4%)	160 (52.8%)	463 (48.4%)
Female	350 (53.6%)	143 (47.2%)	493 (51.6%)
	(χ^2 = 3.99, P=0.06)		
Education (attainment years of education)			
Mean year of education	11.58	11.66	11.6
Standard Deviation	3.7	3.4	3.6
Range	(0-24)	(0-18)	(0-24)
	(T=-0.35, P=0.72)		
Martial Status			
Single	137 (21.0%)	46 (15.2%)	183 (19.1%)
Married	469 (71.8%)	204 (67.3%)	673 (70.4%)
Divorced	9 (1.4%)	10 (3.3%)	19 (2.0%)
Widowed	38 (5.8%)	43 (14.2%)	81 (5.8%)
	(χ^2 = 25.20, P<0.001)		

*** MOH= Ministry of health**

**** UNRWA= United Nations for Relief and Works Agency**

Table 2: Patients from Gaza Strip evaluating clinical behavior of physicians and the provided medical care (n=956)

			Summation 4th & 5th responses				
			MOH* (n= 653)	UNRWA* (n= 303)	Total (n= 956)	χ^2	P
Rank[1]	Order[2]	Twenty-Three items of the EUROPEP[3]	Frequency (%)	Frequency (%)	Frequency (%)		
1	10	Physical examination of you	443 (67.9)	209 (69.0)	652 (68.2)	0.12	0.736
2	3	Making it easy for you to tell him or her about your problem	368 (56.4)	190 (62.7)	558 (58.4)	3.35	0.064
3	13	Telling you what you wanted to know about your symptoms and/or illness	403 (61.7)	153 (50.5)	556 (58.1)	10.71	<0.001
4	5	Listening to you	372 (56.9)	180 (59.4)	552 (57.7)	0.50	0.478
5	9	Thoroughness	371 (56.8)	180 (59.4)	551 (57.6)	0.57	0.451
6	7	Quick relief of your symptoms	402 (61.6)	143 (47.2)	545 (57.0)	17.43	<0.001
7	23	Providing quick services for urgent health problems	352 (53.9)	185 (61.1)	537 (56.2)	4.30	0.038
8	12	Explaining the purpose of the tests and treatments	370 (56.7)	141 (46.5)	511 (53.5)	8.53	0.003
9	18	The helpfulness of the staff (other than the doctor)	347 (53.2)	146 (48.2)	493 (51.6)	2.03	0.154
10	11	Offering you services for preventing disease (e.g. screening, health checks, immunizations)	342 (52.4)	147 (48.6)	489 (51.1)	1.23	0.267
11	8	Helping you to feel well. So that you can perform your normal daily activities	352 (53.9)	129 (42.6)	481 (50.4)	10.63	<0.001
12	17	Preparing you for what to expect from specialist or hospital care	394 (45.1)	159 (52.5)	453 (47.4)	4.61	0.032
13	4	Involving you in decisions about your medical care	301 (46.1)	124 (40.9)	425 (44.4)	2.24	0.134
14	6	Keeping your records and data confidential	275 (42.1)	114 (37.6)	389 (40.7)	1.73	0.189
15	15	Helping you understand the importance of the following his or her advice	274 (41.9)	114 (37.6)	388 (40.6)	1.61	0.204
16	2	Interest in your personnel situation	227 (34.8)	120 (39.6)	347 (36.3)	2.10	0.147
17	16	Knowing what he had done or told you during contacts	190 (29.1)	80 (26.5)	269 (28.3)	0.74	0.389
18	1	Making you feel you had time during consultation	164 (25.1)	87 (28.7)	251 (26.3)	1.38	0.239
19	19	Getting an appointment suite to you	171 (26.2)	59 (19.4)	230 (24.0)	5.11	0.024
20	14	Helping you deal with emotional problems related to your health status	152 (23.3)	68 (22.4)	220 (23.0)	0.08	0.775
21	22	Waiting time in the waiting room	156 (23.9)	61 (20.2)	217 (22.7)	1.67	0.197
22	21	Being able to speak to the GP on the telephone	34 (5.2)	12 (4.0)	46 (4.9)	0.70	0.402
23	20	Getting through to the clinic on the phone	17 (2.6)	11 (3.6)	28 (3.0)	0.77	0.381
		Mean percentage of positive satisfaction	278 (42.5)	122 (40.3)	400 (41.8)	0.45	0.500

*** MOH= Ministry of Health**

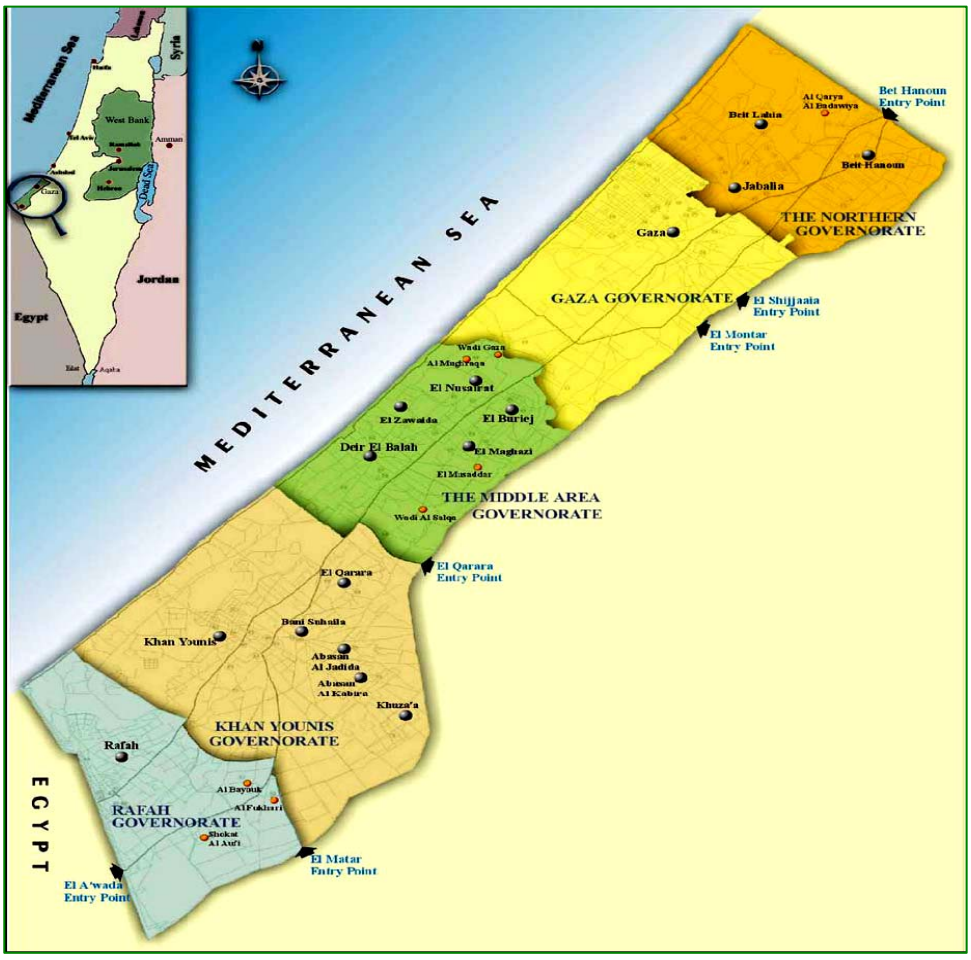
**** UNRWA= United Nations for Relief and Works Agency**

1 Descending rank of EUROPEP items based on the summation of percentages of the 4th and 5th response for each item for column named "*Total*".

2 The original order of the EUROPEP items

3 The EUROPEP tool by Richard Grol and Michel Wensing [20]. Translated and culturally adapted into Arabic in Gaza Strip after permission [18]

Figure 1: Southern Governorates of Palestine (Gaza Strip Governorates)



Pictures of the primary health care centers located in the Gaza Strip, Palestine

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