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Provision of Physicians' Cell Phone Numbers or E-mail Addresses to Patients: The Perspective of Muslim Bedouin Patients in the Negev Region of Israel: A Cross Sectional Study

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Abstract

Objective: To assess the attitude and practice of patients in the Bedouin community to the use of cell phones and email for medical consultation.

Methods: The study used a structured questionnaire that was completed by a telephone interview of a random selection. The questionnaire consisted of items on attitudes to and use of cell phones and email.

Results: The study included 200 patients. One hundred thirty six (68%) were very interested in getting the personal cell phone number of their physician and 40 others (20%) would not object to getting it. Only 44 (22%) used email and only nine of them (20.5%) were very interested in getting the personal email address of their physician.

Conclusion: As new technologies, such as cell phones and email, come into wider use it is important to understand how they can be used and integrated optimally into the healthcare system.

Keywords: Cell phone; E-mail; Patients; Physicians; Consultation; Bedouins

Introduction

The Israel National Health Law was passed in 1996. It provides healthcare for the entire population through "sick funds." Over recent years there has been increasing competition among the sick funds encouraging innovation and efficiency with the aim of improving services and increasing patient satisfaction. The challenge is to improve the level of care for patients and safeguard their interests, while at the same time increasing the efficiency of the healthcare system and meeting budget constraints.

These circumstances led to the option of using new means of communication such as physicians' cell phones and email for patient communication. In attempting to improve the quality of care in an overburdened work environment, physicians use new methods for health care including phone consultation [1]. Several studies have shown that medical consultation by telephone is shorter than the conventional "face-to-face" encounter in the clinic [2,3] and may even be more effective in terms of time savings when caring for and monitoring patients with chronic diseases [4,5]. An enlightened use of telephone consultations could increase the availability of the healthcare system for patients and reduce travel time [6].

Patients who come to the clinic also often contact physicians by phone [7]. One study showed that 83.1% of phone consultations did not necessitate an additional clinic visit as the problem was solved over the phone. In 58.2% of the studies patient follow-up could be conducted by phone only [8]. In other studies most family physicians defined medical consultation by phone as real consultations [9].

Electronic communication holds the promise of a revolution in healthcare for patients [10]. A survey of patient-physician communication showed that patients are very pleased with the possibility of communicating with physicians through email. The use of email for medical purposes was perceived as convenient and useful. There were no reports of problems by physicians [11].

In another study of the use of email for patient-physician communication the authors found that E-mail changes the patient-physician relationship. Educated use of email can improve communication and serve as a major tool in the healthcare system [12]. A study that evaluated physician experience in the use of email for communication with patients showed that physicians who reported satisfaction with this communication modality cited that it saved time (33%) and helped to provide better care (20%). In contrast, physicians who did not like using email stated that the main reason for its use was that patients requested it (80%) [13]. In another evaluation of email use with patients, physicians reported a high level of satisfaction with this form of communication. However, they were concerned about the quality of care and confidentiality issues [14]. The rate of use of email for patient-physician communication is relatively low in comparison to the use of cell phones. A study conducted in the United States showed that the rate of use of email for patient-physician communication was still below 20% [15]. Although more than half of the participants felt that consultation by cell phone could lead to miscommunication, the majority of them were still interested in getting their physician's cell phone number.

Two studies were conducted in Ben-Gurion University of the Negev on the issue of the provision of physicians' cell phone numbers or email addresses to patients: The first evaluated the attitudes of physicians to

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the provision of private cell phone numbers and email addresses. It showed that most of the physicians preferred providing patients with their cell phone number to providing them with their email address [16]. The second evaluated the attitudes of Jewish patients on receiving the private cell phone number or email address of their physician. The results of this study showed that patients preferred to receive the cell phone number of their physician [17].

To gain optimal benefit from this type of communication it is important that physicians understand its advantages and disadvantages. Although provision of cell phone numbers [18] or email addresses [13] to patients is a simple act that can facilitate medical consultation, it can also cause increased workload, affect the work environment adversely and even reduce the physician's free time [19]. Informal consultation is common among patients and physicians, but physicians also consult each other in this way about their patients [20], including the common use of email for this purpose [21].

Currently, the marketing departments of four Israeli HMO's are engaged in providing online medical services to individuals insured by them. In an attempt to determine the policy of these four HMO's, we found that as of the May 2014, guidelines and ethical and legal rules relating to the provision of medical services online have not yet been formulated. At the present there are no organizational guidelines instructing doctors to give their email address or personal cell phone number to patients, so if they do it is at their own discretion. Social media such as Facebook and Twitter serve as a prevailing means of communication today and could also serve as a tool for non-face-to-face medical consultation. In the present study we focused on consultation by cell phone and email by Muslim Bedouin patients in the Negev region of Israel.

The Muslim Bedouin community in the Negev region of Israel numbers about 206,000 individuals who live in villages or in a semi-nomadic lifestyle. It has a high childbirth rate and a large component of youngsters. The mean age of the Bedouin population in the Negev is 14 compared to 25 for the Jewish residents of the region [22]. The primary objective of the present study was to assess the attitudes and practice of patients relating to getting their physician's cell phone number or email address for medical consultation.

Methods

Study type

This was a cross-sectional study in a group of Bedouin patients insured by the Clalit Health Services in the Negev.

Study instrument

The study used a structured questionnaire that was completed by telephone interview. It consisted of two parts. The first part assessed patients' attitudes to getting their physician's cell phone number and email address for medical consultations. This included 17 questions (some of them categorical) regarding patients' attitudes, e.g., "The cell phone is an effective means of communication that could solve my problems" (agree/disagree), How do you feel about getting your physician's email address? (very interested/would not object/not interested). The second part included 11 questions regarding the patient's socio-demographic data, e.g., age, gender, family status, etc.).

The questionnaire was translated into Arabic to enable the Bedouin participants to understand it. The translation was done by the back-translation method. A pilot study was conducted on a group of 20 subjects and the Arabic version was revised where necessary.

Inclusion criteria

Arabic speaking Bedouins, 18 years of age or above, whom consented to participate in the study (telephone consent) and complete the questionnaire.

Study population

A random sample of 1,000 adults, 18 years of age or above, was generated from the roster of adults insured by the Clalit Health Services, Southern Division. After providing informed consent (by telephone as approved by the Helsinki committee) the first 200 who agreed to participate in the study were interviewed by telephone by the investigators. Details on recruitment of the study sample are shown in (Figure 1).

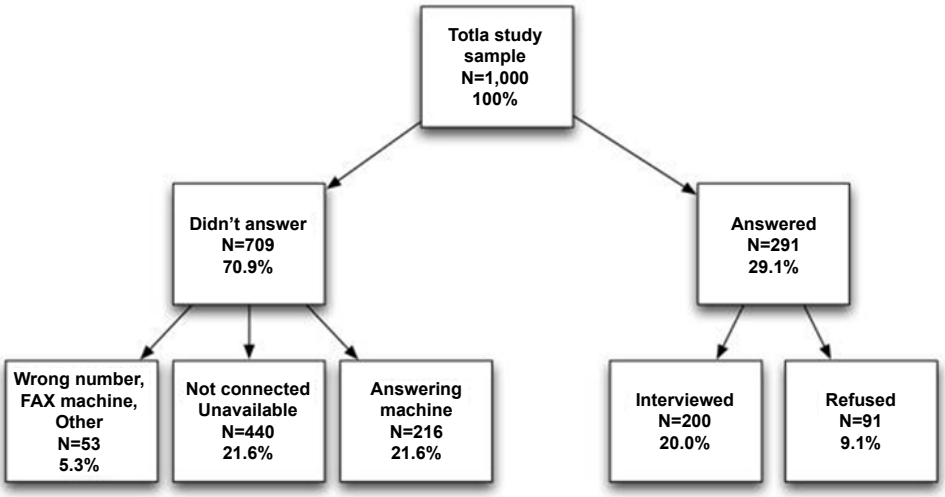

Figure 1: Flow diagram of study population.

Statistical analyses

Statistical analyses were performed using SPSS software, version 17 (SPSS, Chicago, IL, USA). Statistical testing was done to analyze differences between the main study groups. In the univariate analyses chi-square tests were used to analyze statistically significant differences for categorical variables and t-tests for continuous variables. Statistically significance was set at $P<0.05$.

The study was approved by The Helsinki Committee of Meir Medical Center (0061/12).

Results

Socio-demographic characteristics of the study population

The mean age of the study sample was 45.8 ± 16.1 (range 18-19). One hundred and six (53%) of the participants were women. The majority were married (88%), born in Israel (97%) and unemployed (50%). The mean number of years of education was 7.5 ± 5.4. The number of children per family was high at 6.7 ± 5.03, as is characteristic of this segment of the Israeli population. Seventy patients (35%) suffered from chronic disease (Table 1).

One hundred thirty six participants (68%) said that they would be very interested in getting their physician's cell phone number and another 40 (20%) would not object to getting it.

One hundred sixty five participants (82.5%) agreed that getting their physician's cell phone number could improve their relationship with their physician and 77.5% agreed that it could increase their personal sense of security. One hundred twenty one (60.5%) thought that it could cut down on the number of clinic visits.

However, a majority of participants (59.5%) were concerned that there might be impaired communication with the physician by phone, and 63% agreed that a medical error might occur because of the absence of a physical examination (Table 2).

Only 44 participants (22%) use email and only nine of those (20.5%) would be very interested in getting their physician's personal email address. Only 20 of those with email addresses (65.9%) agreed that communication through email could improve their relationship with their physician and 27 (61.4%) agreed that it would give them a feeling of security even if they didn't actually use it. Eighteen (40.9%) agreed that getting their physician's email address could cut down on the number of visits to the clinic (Table 3).

Significantly more patients would prefer to get their physician's cell phone number over their email address ($P<0.001$). A significant percentage also felt that having their physician's cell phone number would increase their feeling of security more than getting the email address ($P<0.03$), even if they didn't use it. A significant percentage of patients also agreed that communication by cell phone could reduce the number of emergency room visits ($P<0.002$) and clinic visits ($P=0.02$) more than by email. More participants (38) had requested their physician's cell phone number than their email address in the past ($P=0.001$). Twenty nine participants (14.5%) said that they had their physician's cell phone number compared to none who had their email address (Table 4).

Older patients would be more interested in getting their physician's cell phone number than younger patients ($p<0.007$), as were patients with chronic disease compared to healthy participants ($P=0.07$). No comparative analyses could be made regarding email communication with physicians because of the small number of responses to these questions.

Discussion

The results of the study show that most of the study sample would prefer to use cell phones for this purpose. In contrast, only a very small proportion of the sample had email addresses so there was little inclination to use this mode of communication.

We found that 68% of the participants were very interested in getting their physician's cell phone number compared to 46.5% in another study of the Jewish population in the same geographic region [17]. These results could reflect a greater interest among Bedouins or a trend over time since the first study reported data that was collected over four years earlier. These findings are compatible with a study done among physicians in the same geographic area [16], in which physicians expressed a higher rate of consent to provide their cell phone numbers compared to email addresses to their patients. The most interesting finding seems to be that patients and physicians show more interest in consultation by cell phone than by email, and this finding is consistent with others presented in previous research [16,17]. Not only were more interested in phone consultation, but the difference was even more substantial because almost all those who expressed an interest were "very interested". A possible explanation for this finding is that phone calls offer direct and immediate communication and give patients a sense of being cared about. From the physician's point of view a phone call provides the opportunity to add crucial information in real time. Another possible explanation is the relatively high cost of installing and maintaining Internet at home, especially for low socioeconomic population such as the Negev Bedouins. Telephone calls interfere with the provision of care to other patients in the clinic while accessing email can be done when there is no direct interaction with patients. However, by communicating by cell phone patients can have a direction consultation in real time for any issue that arises relating to their health condition, compared to the delay in response that occurs when questions are addressed through email. The results of a study conducted in a medical center (not in the community), which evaluated provision of cell phone numbers by physicians to patients, showed that this was perceived of as an act of interest and concern. It also showed that patients made appropriate and effective use of this service when they needed it [23]. In general, patients are pleased when the have the opportunity to contact their physician by cell phone [6,9].

We found that 91% of participants agreed that physicians should be compensated for the provision of service by cell phone. This finding is compatible with the 86% that we found in a study of the general Negev population [17].

More than half of the participants felt that consultation by cell phone could lead to miscommunication or could interfere with the routine work of the physician. Some of the participants could have been concerned about the lack of direct face-to-face contact with the physician when consulting by cell phone. Most of them also thought that cell phones were an effective means of communication and could improve the patient-physician relationship. Thus, the need for a reliable and immediate means of communication with physicians may be stronger than any concern over miscommunication. In this respect it should be noted that in the Bedouin community there is a high degree of accessibility to family physicians where physicians see over 90% of the patients within 48 hours of their request. It is possible that if this availability were lower, a higher percentage of participants

Variable	N (%)
How do you feel about getting your physician's cell phone number?	
Very interested	136 (68.0)
Would not object	40 (20.0)
Not interested	24 (12.0)
Do you agree with the following statements regarding getting your physician's cell phone number?	
It could improve the relationship between us:	
Agree	165 (82.5)
Do not agree	35 (17.5)
It could improve my sense of security even if I don't use it:	
Agree	155 (77.5)
Do not agree	45 (22.5)
The cell phone is an effective means of communication that could solve my problems:	
Agree	147 (73.5%)
Do not agree	53 (26.5%)
The cell phone can cut down on the number of clinic visits:	
Agree	121 (60.5%)
Do not agree	79 (39.5%)
The cell phone can reduce the number of emergency room visits:	
Agree	131 (65.5)
Do not agree	69 (34.5)
At what times would you call the physician?	
Only at appointed hours	97 (55.1)
Only during daytime hours (excepting Saturdays and holidays)	34 (19.3)
At all hours including nights, Saturdays and holidays	45 (25.6)
Under which circumstance would you call your physician?	
Only in unusual circumstances	94 (53.4)
For any questions that I think I require a medical consultation	82 (46.6)
The physician should not be called because it could interfere with the physician's privacy when they're not working:	
Agree	128 (64.0)
Do not agree	72 (36.0)
The physician should not be called because there are telephone centers that are active after clinic hours:	
Agree	127 (63.5)
Do not agree	73 (37.5)
The physician should not be called because in emergencies one can call for an ambulance or go to the emergency room:	
Agree	138 (69.0)
Do not agree	62 (31.0)
The physician should not be called because medical errors can occur if a physical examination is not performed:	
Agree	126 (63.0)
Do not agree	74 (37.0)
The physician should not be called because there is a risk of miscommunication:	
Agree	119 (59.5)
Do not agree	81 (40.5)
The physician should not be called because it can interfere with his clinic work:	
Agree	113 (56.5)
Do not agree	87 (43.5)
I see no reason why I shouldn't get the physician's personal cell phone number:	
Agree	150 (75.0)
Do not agree	50 (25.0)
Have you asked for your physician's cell phone number in the past?	
Yes	38 (19.0)
No	162 (81.0)
Do you have your physician's cell phone number?	
Yes	29 (14.5)
No	171 (85.5)

Table 1: Attitudes to medical consultation through cell phones.

Question	N (%)
Do you use email?	
Yes	44 (22.0)
No	156 (78.0)
How do you feel about getting your physician's email address?	
Very interested	9 (20.5)
Would not object	8 (18.2)
Not interested	27 (61.3)
Do you agree with the following statements regarding getting your physician's email address?	
It could improve the relationship between us:	
Agree	29 (65.9)
Do not agree	15 (34.1)
It could improve my sense of security even if I don't use it:	
Agree	27 (61.4)
Do not agree	17 (38.6)
Email is an effective means of communication that could solve my problems:	
Agree	27 (61.4)
Do not agree	17 (38.6)
Email can cut down on the number of clinic visits:	
Agree	18 (40.9%)
Do not agree	26 (59.1%)
Email can reduce the number of emergency room visits:	
Agree	18 (40.9%)
Do not agree	26 (59.1%)
The physician should not be sent an email because it could interfere with the physician's privacy when they're not working:	
Agree	22 (50.0)
Do not agree	22 (50.0)
The physician should not be sent an email because there are telephone centers that are active after clinic hours:	
Agree	25 (56.8)
Do not agree	19 (43.2)
The physician should not be sent an email because in emergencies one can call for an ambulance or go to the emergency room:	
Agree	30 (68.2)
Do not agree	14 (31.8)
The physician should not be sent an email because medical errors can occur if a physical examination is not performed:	
Agree	29 (65.9)
Do not agree	15 (34.1)
The physician should not be sent an email because there is a risk of miscommunication:	
Agree	25 (56.8)
Do not agree	19 (43.2)
The physician should not be sent an email because it can interfere with his clinic work:	
Agree	19 (43.2)
Do not agree	25 (56.8)
I see no reason why I shouldn't get the physician's personal cell phone number:	
Agree	30 (68.2)
Do not agree	14 (31.8)
At what times would you send the doctor and email message?	
Only at appointed hours	9 (52.9)
Only during daytime hours (excepting Saturdays and holidays)	6 (35.3)
At all hours including nights, Saturdays and holidays	2 (11.8)
Under which circumstance would you send your physician and email message?	
Only in emergencies	7 (41.2)
Whenever I think I need a medical consultation	10 (58.8)
Have you asked for your physician's email address in the past?	
Yes	0 (0.0)
No	44 (100.0)
Do you have your physician's email address?	
Yes	0 (0.0)
No	44 (100.0)

Table 2: Attitudes towards email consultations with physicians.

Question	Cell phone	Email	Chi square	P
	N (%)	N (%)		
How do you feel about getting your physician's cell phone number or email address?				
Very interested	136 (68.0)	9 (20.5)		
Would not object	40 (20.0)	8 (18.2)	55.83	<0.0001
Not interested	24 (12.0)	27 (61.3)		
Do you agree with the following statements about getting your physician's cell phone number or email address?				
It could improve the relationship between us:	165 (82.5)	29 (65.9)		0.01
Agree	35 (12.5)	15 (34.1)		
Do not agree			6.09	
It could improve my sense of security even if I don't use it:				
Agree	155 (77.5)	97 (55.7)	18.26	0.03
Do not agree	45 (22.5)	74 (43.3)		
Cell phones/email are an effective means of communication that could solve my problems:				
Agree	147 (73.5)	27 (61.4)	2.6	0.11
Do not agree	53 (26.5)	17 (38.6)		
Cell phones/email can cut down on the number of clinic visits:				
Agree	121 (60.5)	18 (40.9)	5.65	0.02
Do not agree	79 (31.5)	26 (59.1)		
Cell phones/email can reduce the number of emergency room visits:				
Cell phone provided by my employer	131 (65.5)	18 (40.9)	9.17	0.002
Extra pay for the service	69 (34.5)	26 (59.1)		
At what times would you call or email your doctor?				
Only at appointed hours	97 (55.1)	9 (52.9)	3.14	
Only during daytime hours (excepting Saturdays and holidays)	34 (19.3)	6 (35.3)		0.21
At all hours including nights, Saturdays and holidays	45 (25.6)	2 (11.8)		
Under which circumstance would you call or email your doctor?				
Only in unusual circumstances	94 (53.4)	7(41.2)	0.93	0.33
Whenever I think I need a medical consultation	82 (46.6)	10 (58.8)		
Do you agree with the following statements about getting your physician's cell phone number or email address:				
It could interfere with their privacy when they're not working:	128 (72.5)	98 (64.0)		0.211
Agree	72 (27.5)	72 (36.0)		
Do not agree			1.56	
The physician should not be called or sent an email because there are telephone centers that are active after clinic hours:				
Agree	127 (63.5)	25 (56.8)	0.69	0.4
Do not agree	73 (36.5)	19 (43.2)		
The physician should not be called or sent an email because in emergencies one can call for an ambulance or go to the emergency room:				
Agree	138 (69.0)	30 (68.2)	0.01	0.91
Do not agree	62 (31.0)	14 (31.8)		
The physician should not be called or sent an email because medical errors can occur if a physical examination is not performed:				
Agree	126 (63.0)	29 (65.9)	0.13	0.72
Do not agree	74 (37.0)	15 (34.1)		
The physician should not be called or sent an email because there is a risk of miscommunication:				
Agree	119 (59.5)	25 (56.8)	0.11	0.74
Do not agree	81 (40.5)	19 (43.2)		
The physician should not be called or sent an email because it can interfere with his clinic work:				
Agree	113 (56.5)	19 (43.2)	2.58	0.11
Do not agree	87 (43.5)	25 (56.8)		
I see no reason why I shouldn't get the physician's personal cell phone number or email address:				
Agree	150 (75.0)	30 (68.2)	0.87	0.35
Do not agree	50 (25.0)	14 (31.8)		
Have you asked for your physician's cell phone number or email address in the past?				
Yes	38 (19.0)	0 (0)	9.9	0.001
No	162 (81.0)	44 (100)		
Do you have your physician's cellphone number or email address?				
Yes	29 (14.5)	0 (0)	7.24	0.007
No	171 (85.5)	44 (100)		

Table 3: Comparison of attitudes relating to medical consultation by cell phone or E-mail.

Question	Very interested	Would not object	Not interested	F/Chi square	P
Gender					
Male	63 (46.3)	16 (40.0)	94 (91.3)	3.127	0.21
Female	73 (53.7)	24(60.0)	9 (8.7)		
Age					
Mean ± SD	47.9 ± 16.5	38.8 ± 13.4	45.2 ± 15.2	5.134	0.007
Range	19-89	21-71	18-66		
Family status					
Married	118 (86.8)	37 (92.5)	21 (87.5)	0.97	0.62
Single	18 (13.2)	3 (7.5)	3 (12.5)		
Number of children					
Mean ± SD	7.3 ± 5.0	4.5 ± 3.6	7.4 ± 6.1	5.06	0.007
Range	0-30	0-15	0-20		
Country of birth					
Israel	130 (95.6)	40 (100)	24 (100)	2.91	0.23
Other	6 (4.4)	0 (0)	0 (0)		
Years of education					
Mean ± SD	7.0 ± 5.6	8.5 ± 4.5	8.5 ± 5.7	1.869	0.16
Range	0-27	0-12	0-17		
Work status					
Employed	38 (27.9)	17 (42.5)	11 (45.8)	4.99	0.08
Unemployed	98 (72.1)	23 (57.5)	13 (54.2)		
Health status					
Excellent-good	66 (48.5)	29 (72.5)	15 (62.5)		
Good-fair	61 (44.9)	9 (22.5)	8 (33.3)	7.98	0.09
Poor	9 (6.6)	2 (5.0)	1 (4.2)		
Chronic disease					
Yes	54 (39.7)	8 (20.0)	8 (33.3)	5.31	0.07
No	82 (60.3)	32 (80.0)	16 (66.7)		

Table 4: Sociodemographic characteristics and attitudes to consultation by cell phone.

would have preferred the cell phone as a means of communication with their physician.

Providing cell phone numbers and email addresses could give patients a feeling of security even if they do not make use of them. If they do use these means of communication they might be less inclined to turn to the clinic or to the emergency room, thus reducing the workload for physicians in the clinic and the hospital. Indeed, in another study the authors found that the use of cell phones for consultation significantly reduced the number of emergency room visits [24].

The use of email in medicine developed later than the use of cell phones, even though email communication was reported in the literature over ten years ago [21]. Physicians reported a high level of satisfaction when they used email for communication with their patients. However, while they also expressed concern about the safety and security of this mode of communication, only a few of them discussed this issue with their patients [14].

In our previous study on physicians in the Negev we reported that one of the reasons, cited by 65% of the physicians in that study, for not wanting to provide email addresses to patients was that this means of communication eliminates the possibility of conducting a physical examination, leading to potential mistakes in diagnosis and treatment [16].

Today, millions of people around the world have an email connection and are making increasing use of it. Provision of healthcare services through email may be a major mode for medical consultation in the future, but to date we do not have enough controlled studies to support email communication for healthcare or its integration into the work routine of clinics [11].

The practice of medical consultation through email raises an important ethical issue. Researchers in northern Europe found that medical confidentiality cannot be safeguarded. As a result many hospitals developed secure channels of communication through which patients can make contact with physicians [25,26]. Israel, to date, does not have any guidelines for the practice of electronic medicine that is provision of consultation or other healthcare services by cell phone, email, of the use of social networks such as Facebook and Twitter.

While there are advantages to the use of cell phones and email there are also limitations such as interference with the physician's free time after their formal work hours, interference with the provision of care for other patients, and the risk of errors in judgment when reaching decisions [27]. The allocation of resources such as dedicated time to respond to cell phone calls and email messages could increase physician willingness to use these communication modalities [28]. As new technologies such as cell phones and email become more available and widely used, it is important to understand the method and significance of the integration of these modes into clinical practice. The allocation of time and/or payment to physicians for email or cell phone consultations with a more costly dedicated phone and number, could improve non-face-to-face health care services to patients. Physicians often resist this type of non-frontal care. The formulation of medico-legal guidelines and rules and appropriate accreditation could make non-frontal service more acceptable to them. The integration of nurses into the service of cell phone and email consultation could improve this type of service since nurses' time is less expensive than physicians' time and their availability could be greater. However, this issue should be studied further since it is not clear if patients trust nurses as much as they do physicians.

This study has several limitations. It was conducted in a specific geographic area and involved the Bedouin population in that area, so that the results may not be generalizable to the entire Arab population of Israel. The Arab community in northern Israel may have greater access to the Internet, but we cannot assess this definitively. The study data were collected from people who agreed to be interviewed and could be reached by telephone. This population sector could be different from those who did not participate. This could introduce a bias since those who were not interviewed might represent a lower socioeconomic level of the population.

In conclusion, the Bedouin community in the Negev would prefer to get their physician's cell phone number for consultation purposes. As new technologies such as cell phones and the Internet become more widespread and their use increases it is important to understand how to integrate these means of communication into the healthcare system.

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