HMO-mHealth vs. Face-to-Face Healthcare Interaction: Determinants of HMO-mHealth Adoption

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Abstract

Background: Health Maintenance Organization-Mobile Health (HMO-mHealth) services have a direct impact on patients' daily lives, and HMOs are regularly expanding their range of mHealth services. HMO-mHealth are saving HMOs time and money, and the services are becoming more accessible to patients. However, the willingness to use mHealth apps depends on user perception. Although mHealth apps can change the relationship dynamic between HMOs and patients, patients prefer to use them to facilitate face-to-face interactions rather than replace them.

Objective: This study aims to examine the extent to which adults in Israel prefer adopting healthcare services using HMO-mHealth as a replacement for face-to-face interaction.

Methods: Israeli adults aged ?18 years completed the questionnaire. The data collection period was from December 2020 to February 2021. 6,321 respondents (68% female and 32% male) could only complete the questionnaire once electronically. All services available in the main HMO-mHealth apps of the four Israeli HMOs were mapped. The 29 healthcare services used in this study were identical in all four HMO-mHealth apps in Israel. The association between sociodemographic characteristics and health condition with preference for HMO-mHealth or face-to-face interaction was analyzed separately for each healthcare service using a logistic model.

Results: Seven main variables were found to influence HMO-mHealth adoption, including: gender, age, education, marital status, religious affiliation, and subjective health condition. Females were more likely to prefer HMO-mHealth apps for administrative matters and face-to-face interaction for personal medical diagnosis or treatment (OR:0.74, p<.001 and 0.82 p<.001, respectively). Married individuals preferred using HMO-mHealth app more than a face-to-face meeting to obtain a new medical diagnosis (OR:1.31, p<.001) or treatment (OR:1.34, p<.001). A better subjective perception of health condition was found to be associated with an increased preference for the use of HMO-mHealth apps. No significant association was found between the presence of a chronic disease and the preferred mode of interaction for most services.

Conclusions: HMO-mHealth is proving to be a robust and efficient tool for the delivery of healthcare services when compared to face-to-face healthcare interactions. However, there are still barriers that affect vulnerable populations when adopting HMO-mHealth. To address existing disparities, it is important to tailor HMO-mHealth apps to older adults, the chronically ill, and minorities in society, as these groups have an even greater need for these services. Such customizations are essential to mitigating healthcare disparities in Western societies. To provide an optimal response to these populations, future studies should focus on identifying the barriers that affect the utilization of HMO-mHealth in these groups.

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Abstract

Background: Health Maintenance Organization-Mobile Health (HMO-mHealth) services have a

direct impact on patients' daily lives, and HMOs are regularly expanding their range of mHealth services. HMO-mHealth are saving HMOs time and money, and the services are becoming more accessible to patients. However, the willingness to use mHealth apps depends on user perception. Although mHealth apps can change the relationship dynamic between HMOs and patients, patients prefer to use them to facilitate face-to-face interactions rather than replace them.

Objective: This study aims to examine the extent to which adults in Israel prefer adopting healthcare services using HMO-mHealth as a replacement for face-to-face interaction.

Methods: Israeli adults aged ≥18 years completed an electronically questionnaire. Data was collected from December 2020 to February 2021. All services available in the main HMO-mHealth apps of the four Israeli HMOs were mapped. The 29 healthcare services used in this study were identical in all four HMO-mHealth apps in Israel. The association between sociodemographic characteristics and health condition with preference for HMO-mHealth or face-to-face interaction was analyzed separately for each healthcare service using a logistic model.

Results: A total of 6,321 respondents (68% female and 32% male) were completed the questionnaire. About 88% preferred using HMO-mHealth apps for administrative matters. However, 55%, 52%, and 47% preferred a face-to-face meeting to receive an initial medical diagnosis, medical treatment, and medical diagnosis results, respectively.

Seven main variables were found to be associated with HMO-mHealth adoption, including: gender, age, education, marital status, religious affiliation, and subjective health condition. Females were more likely than males to prefer HMO-mHealth apps for administrative matters such as setting a family physician visit (OR:1.44, P<.001) or changing visit details (OR:1.40, P<.001), and face-to-face interaction for personal medical diagnosis or treatment (OR:0.74, P<.001 and 0.82 P<.001, respectively). Married individuals preferred using HMO-mHealth app more than a face-to-face meeting to obtain a new medical diagnosis (OR:1.31, P<.001) or treatment (OR:1.34, P<.001). Improved health perception was associated with higher preference for HMO-mHealth apps across all

healthcare services in this study (OR range: 1.11, *P*<.02 – 1.38, *P*<.001). No significant association was found between the presence of a chronic disease and the preferred mode of interaction for most services.

Conclusions: HMO-mHealth is proving to be a robust and efficient tool for the delivery of healthcare services when compared to face-to-face healthcare interactions. However, there are still barriers that affect vulnerable populations when adopting HMO-mHealth. To address existing disparities, it is important to tailor HMO-mHealth apps to older adults, the chronically ill, and minorities in society, as these groups have an even greater need for these services. Future studies should focus on identifying the barriers that affect the utilization of HMO-mHealth in these groups.

Keywords: HMO-mHealth; mHealth; face-to-face; digital health; digital health apps; eHealth; HMO-mHealth adoption; Healthcare; mHealth adoption; mobile phone

Introduction

The rapid development of mobile Health (mHealth) directly impacts patients' daily lives, relationships, and communication with Health Maintenance Organizations (HMOs). In the absence of an epidemic and its consequences, the use of mHealth apps is at the discretion of the patient [1, 2], and only a few use them frequently [3, 4]. Typically, mHealth apps are used to independently manage medical interventions and personalize treatments, aiming to reduce the demand on healthcare providers and eliminate geographic barriers [5]. Nevertheless, the potential of mHealth is vast [6]. The medical information and services provided to patients by HMOs can be personalized to their specific needs anytime, and anywhere [7, 8]. Utilization of mHealth is beneficial in many ways. It

enables self-management of disease, evaluation of personal medical information, and easier and more accessible contact with medical professionals [9-13]. mHealth can also help support patients' lifestyle [13], may improve patients' health status [14], improve their quality of life and health outcomes, and reduce the incidence of disease [12]. Sometimes, they even help with hospitalization [2] and take over the roles of general practitioners (GP) [15]. In addition, mHealth influences patients' sense of autonomy and their need for well-being [2].

HMOs are regularly expanding the services offered in mHealth. The use of information and communication technologies to meet the needs of health systems around the world is increasing [16]. In England, for example, the National Health Service (NHS) has developed mHealth apps that allow users to make appointments with doctors, request prescription renewals and order medications, receive medical advice, view personal medical records, declare their willingness to donate organs, and, with the pandemic outbreak COVID-19, obtain authorizations and information for outbreak durations [17].

In Germany, the Digital Healthcare Act, that was enrolled in 2019, allows health insurers to promote the development of apps that include the ability to renew a prescription, provide medical advice via video call, and access a secure data network from anywhere in the country. In addition, the use of mHealth apps can help promote digital health literacy among patients to achieve equal access and high involvement on the patients' part [18]. Like England and Germany, the health system in Israel is primarily a public health system. According to the Israeli health insurance law [19], every resident in Israel is entitled to health insurance that includes a standard basket of services, which is termed "as the Basic Healthcare Basket", established by law. In addition to this system, residents can expand the basic services basket by purchasing an additional basket of services from HMOs. Healthcare services are provided to all Israeli residents by four healthcare providers ("Clalit Healthcare Service", "Maccabi Healthcare Services", "Leumit Healthcare Services", and "Kupat Holim Meuhedet") to which the residents are registered [19]. In May 2011, mHealth apps were launched by two HMOs

funds were launched: "Maccabi Healthcare Services" [20] and "Leumit Health Services" [21]. In August 2011, the mHealth app of "Kupat Holim Meuhedet" was launched, and in February 2012, the mHealth app of "Clalit Healthcare Service" was launched [22, 23]. Over the years, the services offered by HMOs through mHealth apps have evolved. Today, they offer a wide range of services both in the main healthcare services app and in additional apps (e.g., childcare and pregnancy support). During the COVID-19 pandemic, the use of telehealth services increased [24] and there was an increase in the use of HMO mHealth services, especially among patients with chronic diseases [25]. There was also an increase in the use of COVID-19 management apps (monitoring exposure to diagnosed patients and diagnosing symptoms) [24]. The use of remote medicine services has also increased in Israel [26, 27], when some of these healthcare services were provided by the HMO-mHealth apps [20-23]. However, willingness to use mHealth apps is influenced by the user's perception of perceived usefulness, perceived ease of use, subjective norms [28], app quality, and user health literacy [29, 30]. mHealth apps are promising platforms that can be used to provide efficient and convenient access to therapeutic services [31]. The use of mobile platforms is highly recommended in combination with face-to-face interventions to support people with their daily routines [6]. However, mHealth appointments were found to be more expensive than face-to-face healthcare appointments [32]. A meta-ethnographic review of qualitative studies by Vo et al. (2019), sheds light on the dynamics of patient engagement and opportunities to help patients become more empowered through the use of mHealth apps. Vo et al. (2019) reviewed 43 articles of qualitative studies that addressed patient evaluation, expectations, and perceptions of mHealth apps. Patients described mHealth apps as tools that enable discussions with their healthcare providers that can improve adherence to care and their healthcare experience. mHealth apps were described as a tool for patients to engage in a "two-way dialogue". Although mHealth apps can change the dynamics of patient-provider relationships by providing relevant information for conducting assessments, diagnoses, registering for treatments, etc., patients prefer to use them simply as a tool to facilitate

rather than replace these relationships [6].

Objectives

The aim of this study was to examine the extent to which adults in Israel prefer to adopt HMO-mHealth apps and receive healthcare services via HMO-mHealth as a substitute for face-to-face interaction, and to identify factors associated with these preferences.

Methods

Study Design

We designed a cross-sectional online survey to examine the preferences of adults in Israel for adopting HMO-mHealth apps and receiving healthcare services vs HMO-mHealth as a substitute for face-to-face interaction. Data for this study was collected from December 2020 to February 2021. Respondents were not required to provide any identifying information, and any participant could stop the survey at any point. The survey was developed on the Qualtrics platform.

Participant Recruitment

The questionnaire was designed on the Qualtrics platform and distributed by research assistants via social media (WhatsApp groups, Facebook, etc.). Our target population was Israeli adults aged ≥18 years, which were sampled using convenience sampling. Responders were allowed to fill in the questionnaire electronically only once. To estimate the required sample size, we relied on data from the Central Bureau of Statistics in Israel. The population of the State of Israel in January 2024 is estimated to be around 9.855 million [33]. Since the proportion of mHealth use in the population is unknown and is assumed to be a maximum of 50%, with a significance level of 5%, a sample size of 384 residents was calculated for this study. In practice, there was a high response rate, and 6,321 Israeli adults completed the research questionnaire. It was decided to use all the data to obtain greater validity.

Survey Development and Definition of Variables

All services available in the main HMO-mHealth apps of the four Israeli HMOs were mapped. Twenty-nine healthcare services, which were identical across all four HMO-mHealth apps in Israel, were selected for this study and included in the HMO-mHealth/face-to-face interaction preference questionnaire. These services included administrative matters, such as setting a visit or changing a visit date, as well as medical services, such as receiving medical diagnosis or treatment. For each of the 29 items, participants were asked whether they preferred mHealth or face-to-face interaction to receive the health service. Each item was tested as a separate outcome.

In addition, the following information was self-reported by participants: gender, age (years), marital status (Married/Single/Divorced/Widowed), number of children, birthplace (Israel/other), religion (Jewish/Non-Jewish), religiosity (secular/religious), education (Uneducated/Elementary-Middle school/High School/ Vocational training/BA/MA-PhD), residence (Center, North, South, Jerusalem), subjective health condition (from 1-worst to 5-very good), and previous diagnosis of chronic illness by a licensed physician (yes/no).

Data Analysis

Main characteristics of the study population were describes using percentages for categorical variables and means with standard deviations for continuous variables.

Chi-square tests or independent sample t-tests were employed to evaluate the association of categorical or continuous predictors, respectively, with each of the 29 health services included in this study. Variables that were significant ($P<.05$) in the univariable tests for at least one of the healthcare services were included in the final multivariable logistic models. The association between significant personal characteristics with the preference of mHealth or face-to-face interaction was assessed separately for each healthcare service using multivariable logistic regression analysis. In each model, a particular health service was evaluated as the dependent variable (0= face-to-face; 1= mHealth). The predictor variables were entered simultaneously into each model and included socio-demographic characteristics (gender, age, marital status, birthplace, number of children, education,

religion, religiosity, residence), subjective health condition, and previous diagnosis of chronic illness. To mitigate the potential for spurious statistical significance arising from multiple tests, Benjamini-Hochberg adjusted *P*-values were computed using WinPepi version 11.65 [34]. *P*-value < .05 was considered statistically significant.

Ethical Consideration

The study was approved by the Ethics Committee of Ariel University (AU-HEA-AZ-20201217). All participants were informed of the aims of the study in an introductory section and gave their informed consent to participate in the study. No conditioning questions were asked to conduct the survey, as healthcare services are provided to all residents of Israel by four healthcare providers to which residents are registered.

Results

Between December 2020 and February 2021, 6,321 Israeli adults completed the study questionnaire. The main characteristics of the study population are described in Table 1. The mean age was 35.42 years (SD 13.09), the majority were female (68%), Jewish (82.8%), and were born in Israel (81%). About half were married (52.2%), lived in the center of Israel (49.1%), had no children (51.5%), and had an academic degree (BA, MA, or PhD, 49.2%). More than half described themselves as secular or traditional (56.1%). Most participants had no chronic diseases (82.8%) and declared that they were in very good health condition (59.7%).

Table 1. **General characteristics of the participants (N=6,321).**

Demographic variables		Participants
Gender, n (%)		
	Female	4,296 (68)
	Male	2,025 (32)
Age, n (%), (years), mean (SD)		35.4 (13.1)
	≤39	4,383 (69.3)
	40-64	1,723 (27.3)
	65-74	164 (2.6)
	≥75	51 (0.8)
Marital status, n (%)		
	Married	3,299 (52.2)
	Single	2,708 (42.9)
	Divorced/ Widowed	313 (4.9)
Children, n (%)		
	0	3,253 (51.5)
	1	557 (8.8)
	2	803 (12.7)
	3	787 (12.5)
	4	493 (7.8)
	5	219 (3.5)
	≥6	209 (3.3)
Birthplace, **n (%)**		
	Israel	5,283 (83.6)
	Other	1,038 (16.4)
Religious affiliation, **n (%)**		
	Jewish	5,234 (82.8)
	Non-Jewish	1,087 (17.2)
Religiosity, **n (%)**		
	Secular	3,546 (56.1)
	Religious	2,775 (43.9)
Education, n (%)		
	Uneducated	50 (0.8)
	Elementary/ Middle school	135 (2.1)
	High School	2,245 (35.5)
	Vocational training	739 (11.7)
	BA	2,385 (37.7)
	MA/ PhD	767 (12.1)
Subjective health condition, n (%)		
	Very good	3,775 (59.7)
	Good	2,184 (34.6)
	Moderate	299 (4.7)
	Not good	54 (0.9)
	Bad	9 (0.1)
Chronic illness, **n (%)**		
	Yes	1,086 (17.2)
	No	5,235 (82.8)

Figure 1 describes participants' preference for receiving healthcare services via HMO-mHealth apps

or face-to-face interaction for 29 health services offered by all HMO-mHealth apps in Israel. The vast majority of participants (~88%) preferred to use HMO-mHealth apps for administrative matters such as changing visit dates, scheduling a visit for a vaccination visit, submitting a prescription renewal request, and generation of a sick-day certificate. When the primary purpose of the visit was for medical services involving treatment or diagnostic, more individuals preferred face-to-face meetings rather than using HMO-mHealth services. Specifically, 55% of participants reported that they preferred a face-to-face meeting to receive an initial medical diagnosis, and 52% reported that they prefer a face-to-face meeting to receive medical treatment. About 47% preferred a face-to-face meeting for receiving medical diagnosis results.

Figure 1: **Preference for receiving healthcare services using HMO-mHealth apps or Face-to-Face interaction.**

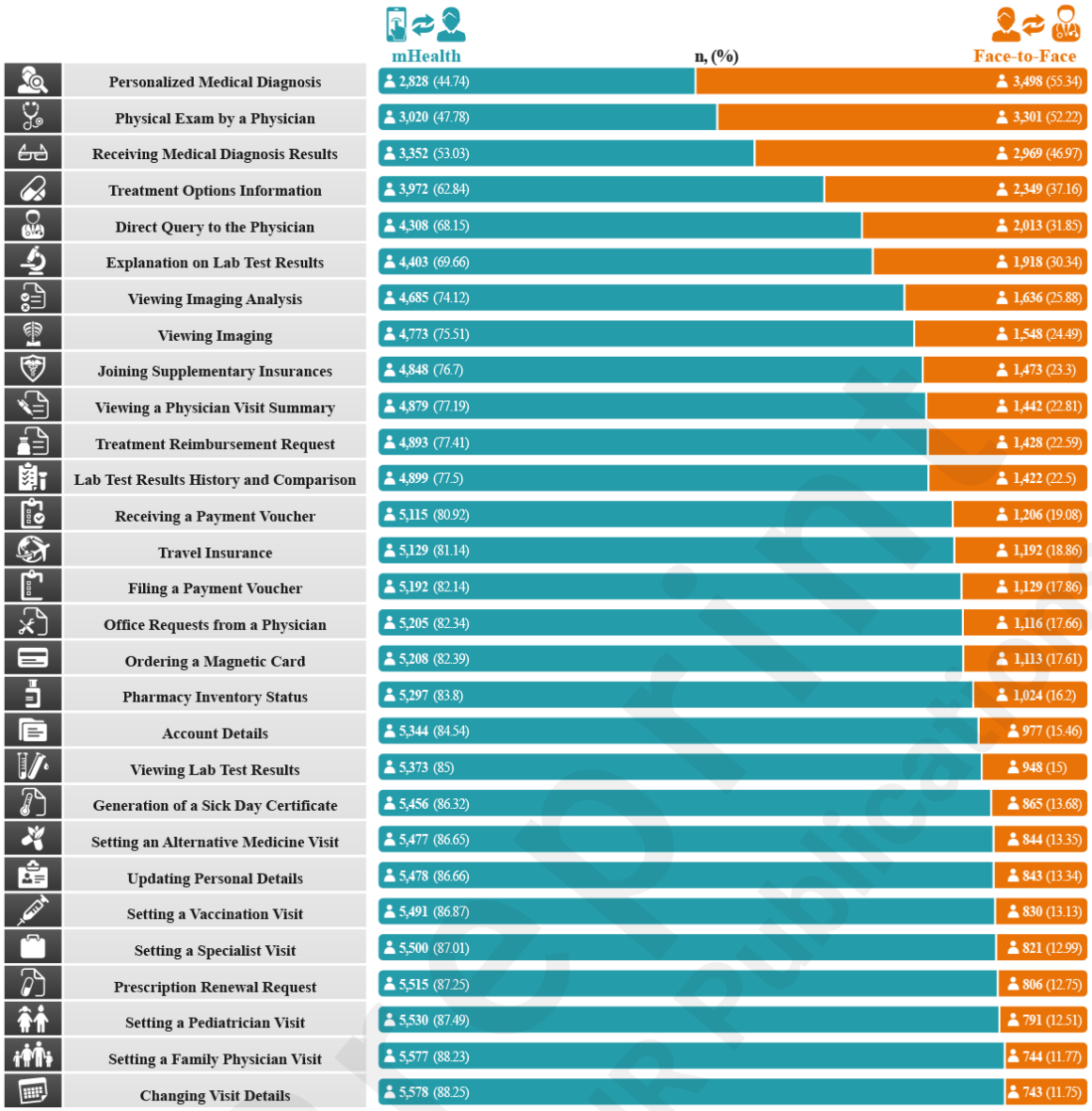
mHealth
n, (%)
Face-to-Face
Personalized Medical Diagnosis 2,828 (44.74) 3,498 (55.34)
Physical Exam by a Physician 3,020 (47.78) 3,301 (52.22)
Receiving Medical Diagnosis Results 3,352 (53.03) 2,969 (46.97)
Treatment Options Information 3,972 (62.84) 2,349 (37.16)
Direct Query to the Physician 4,308 (68.15) 2,013 (31.85)
Explanation on Lab Test Results 4,403 (69.66) 1,918 (30.34)
Viewing Imaging Analysis 4,685 (74.12) 1,636 (25.88)
Viewing Imaging 4,773 (75.51) 1,548 (24.49)
Joining Supplementary Insurances 4,848 (76.7) 1,473 (23.3)
Viewing a Physician Visit Summary 4,879 (77.19) 1,442 (22.81)
Treatment Reimbursement Request 4,893 (77.41) 1,428 (22.59)
Lab Test Results History and Comparison 4,899 (77.5) 1,422 (22.5)
Receiving a Payment Voucher 5,115 (80.92) 1,206 (19.08)
Travel Insurance 5,129 (81.14) 1,192 (18.86)
Filing a Payment Voucher 5,192 (82.14) 1,129 (17.86)
Office Requests from a Physician 5,205 (82.34) 1,116 (17.66)
Ordering a Magnetic Card 5,208 (82.39) 1,113 (17.61)
Pharmacy Inventory Status 5,297 (83.8) 1,024 (16.2)
Account Details 5,344 (84.54) 977 (15.46)
Viewing Lab Test Results 5,373 (85) 948 (15)
Generation of a Sick Day Certificate 5,456 (86.32) 865 (13.68)
Setting an Alternative Medicine Visit 5,477 (86.65) 844 (13.35)
Updating Personal Details 5,478 (86.66) 843 (13.34)
Setting a Vaccination Visit 5,491 (86.87) 830 (13.13)
Setting a Specialist Visit 5,500 (87.01) 821 (12.99)
Prescription Renewal Request 5,515 (87.25) 806 (12.75)
Setting a Pediatrician Visit 5,530 (87.49) 791 (12.51)
Setting a Family Physician Visit 5,577 (88.23) 744 (11.77)
Changing Visit Details 5,578 (88.25) 743 (11.75)

Figure 2 summarizes the independent associated with personal characteristics and preferences for use of health services via HMO-mHealth apps or face-to-face interaction. The multivariable logistic models revealed differences in the factors associated with preferences for use of health services via HMO-mHealth apps or face-to-face interaction. Among sociodemographic characteristics, sex, age, and marital status, education level, ethnicity, and religiosity were significantly associated with the preference of mHealth/face-to-face interaction for most healthcare services. Specifically, compared to unmarried individuals, married individuals preferred using HMO-mHealth app more than a face-to-face meeting to obtain a new medical diagnosis (OR:1.31, *P*<.001) or treatment (OR:1.34, *P*<.001), and for changing visit details (OR:1.35, *P*=.004) or scheduling a new visit with a primary care physician (OR:1.39, *P*<.001), pediatrician (OR:1.54, *P*<.001), or specialist (OR:1.36, *P*<.001). Individuals with an academic background were more likely to prefer HMO-mHealth apps than a face-to-face meeting when administrative issues were involved, such as making an appointment with family physician (OR:1.81, *P*<.001) or changing visit details (OR:1.89, *P*<.001), and for medical information such as a direct query for the physician (OR:1.32, *P*<.001), viewing imaging analysis (OR:1.44, *P*<.001) or a visit summary (OR:1.64, *P*<.001). However, no association was found between academic status and preferred mode of interaction for medical diagnosis and treatment. Non-Jewish and religious individuals were less likely to prefer using HMO-mHealth apps and preferred face-to-face interaction for both administrative and medical purposes. Females were more likely than males to prefer HMO-mHealth apps for administrative matters and face-to-face interaction for personal medical diagnosis or treatment (OR:0.74, *P*<.001 and 0.82 *P*<.001, respectively).

A better subjective perception of health condition was associated to a higher preference for using HMO-mHealth apps. However, no significant association was found between the presence of chronic disease and the preferred mode of interaction for most services.

Figure 2. **Factors associated with adoption of HMO-mHealth vs. face-to-face .interaction - multivariable logistic models**

Healthcare services \ Main Characteristics	Female OR (*P*)	Age OR (*P*)	Married OR (*P*)	Born in Israel OR (*P*)	Children OR (*P*)	Academic OR (*P*)	Non-Jewish OR (*P*)	Religious OR (*P*)	Living in the north OR (*P*)	Living in the south OR (*P*)	Living in Jerusalem area OR (*P*)	Chronic disease OR (*P*)	Subjective health condition OR (*P*)
Personalized Medical Diagnosis	0.74 (<.001)	1.00 (=.19)	1.31 (<.001)	1.21 (=.04)	0.98 (=.64)	1.00 (=.99)	0.79 (<.001)	0.86 (=.01)	0.99 (=.85)	0.87 (=.29)	0.89 (=.25)	0.95 (=.75)	1.16 (<.001)
Physical Exam by a Physician	0.82 (<.001)	0.99 (=.05)	1.34 (<.001)	1.14 (=.12)	0.99 (=.81)	1.10 (=.07)	0.70 (<.001)	0.76 (<.001)	1.05 (=.55)	0.79 (=.07)	0.80 (<.001)	1.00 (=.95)	1.16 (<.001)
Receiving Medical Diagnosis Results	0.70 (<.001)	1.00 (=.25)	1.28 (<.001)	1.17 (=.07)	1.02 (=.64)	1.14 (=.011)	0.82 (<.001)	0.86 (<.001)	0.93 (=.41)	0.83 (=.15)	0.88 (=.23)	0.92 (=.52)	1.13 (<.001)
Treatment Options Information	0.79 (<.001)	0.99 (<.001)	1.26 (<.001)	1.02 (=.77)	1.03 (=.64)	1.22 (<.001)	0.64 (<.001)	0.76 (<.001)	0.95 (=.56)	0.76 (<.001)	0.95 (=.57)	0.99 (=.95)	1.23 (<.001)
Direct Query to the Physician	0.96 (=.57)	0.99 (=.012)	1.58 (<.001)	1.28 (<.001)	1.06 (=.39)	1.32 (<.001)	0.49 (<.001)	0.71 (<.001)	0.91 (=.33)	0.75 (<.001)	0.81 (<.001)	1.14 (=.44)	1.11 (=.02)
Explanation on Lab Test Results	1.01 (=.91)	0.99 (=.02)	1.64 (<.001)	1.15 (=.14)	1.00 (=.95)	1.40 (<.001)	0.55 (<.001)	0.82 (<.001)	0.91 (=.34)	0.92 (=.57)	0.95 (=.57)	1.21 (=.19)	1.21 (<.001)
Viewing Imaging Analysis	1.02 (=.87)	0.98 (<.001)	1.53 (<.001)	1.08 (=.40)	1.04 (=.64)	1.43 (<.001)	0.46 (<.001)	0.73 (<.001)	0.77 (<.001)	0.79 (=.12)	0.94 (=.57)	1.30 (<.001)	1.22 (<.001)
Viewing Imaging	1.06 (=.45)	0.98 (<.001)	1.43 (<.001)	1.13 (=.18)	1.06 (=.39)	1.44 (<.001)	0.39 (<.001)	0.75 (<.001)	0.77 (<.001)	0.80 (=.15)	0.91 (=.45)	1.18 (=.24)	1.15 (=.01)
Joining Supplementary Insurances	0.99 (=.91)	0.99 (<.001)	1.24 (=.01)	1.09 (=.38)	0.98 (=.64)	1.46 (<.001)	0.40 (<.001)	0.69 (<.001)	0.76 (<.001)	0.80 (=.15)	0.94 (=.57)	0.99 (=.95)	1.28 (<.001)
Viewing a Physician Visit Summary	1.10 (=.21)	0.98 (<.001)	1.55 (<.001)	1.21 (=.07)	1.03 (=.64)	1.64 (<.001)	0.35 (<.001)	0.67 (<.001)	0.80 (=.02)	0.71 (<.001)	0.87 (=.26)	1.12 (=.48)	1.22 (<.001)
Treatment Reimbursement Request	0.95 (=.52)	0.98 (<.001)	1.37 (<.001)	1.26 (=.04)	1.06 (=.39)	1.76 (<.001)	0.40 (<.001)	0.67 (<.001)	0.89 (=.32)	0.83 (=.22)	1.11 (=.41)	1.03 (=.91)	1.34 (<.001)
Lab Test Results History and Comparison	1.10 (=.21)	0.99 (<.001)	1.63 (<.001)	1.15 (=.16)	0.98 (=.70)	1.51 (<.001)	0.39 (<.001)	0.83 (<.001)	0.83 (=.09)	0.90 (=.51)	1.01 (=.91)	1.34 (<.001)	1.27 (<.001)
Receiving a Payment Voucher	1.30 (<.001)	0.98 (<.001)	1.70 (<.001)	1.44 (<.001)	1.03 (=.64)	1.62 (<.001)	0.28 (<.001)	0.68 (<.001)	0.75 (<.001)	0.80 (=.15)	1.10 (=.51)	1.22 (=.23)	1.24 (<.001)
Travel Insurance	1.05 (=.57)	0.99 (<.001)	1.30 (<.001)	1.23 (=.06)	0.98 (=.64)	1.60 (<.001)	0.41 (<.001)	0.70 (<.001)	0.73 (<.001)	0.80 (=.15)	1.13 (=.36)	1.13 (=.48)	1.38 (<.001)
Filing a Payment Voucher	1.17 (=.05)	0.99 (<.001)	1.46 (<.001)	1.32 (<.001)	1.03 (=.64)	1.73 (<.001)	0.30 (<.001)	0.68 (<.001)	0.79 (=.02)	0.89 (=.51)	1.19 (=.25)	1.15 (=.48)	1.31 (<.001)
Office Requests from a Physician	1.35 (<.001)	0.98 (<.001)	1.58 (<.001)	1.17 (=.17)	1.05 (=.64)	1.82 (<.001)	0.29 (<.001)	0.66 (<.001)	0.79 (=.02)	0.84 (=.31)	0.97 (=.80)	1.12 (=.50)	1.26 (<.001)
Ordering a Magnetic Card	1.08 (=.41)	0.98 (<.001)	1.25 (=.01)	1.19 (=.13)	1.04 (=.64)	1.69 (<.001)	0.36 (<.001)	0.64 (<.001)	0.77 (=.02)	0.80 (=.15)	1.07 (=.57)	1.07 (=.75)	1.34 (<.001)
Pharmacy Inventory Status	1.18 (=.05)	0.98 (<.001)	1.39 (<.001)	1.12 (=.33)	1.01 (=.90)	1.80 (<.001)	0.29 (<.001)	0.61 (<.001)	0.77 (=.02)	0.83 (=.29)	0.95 (=.66)	1.03 (=.92)	1.25 (<.001)
Account Details	1.23 (=.02)	0.99 (=.14)	1.29 (=.01)	1.30 (=.04)	0.99 (=.90)	1.74 (<.001)	0.34 (<.001)	0.69 (<.001)	0.69 (<.001)	0.92 (=.62)	1.07 (=.57)	1.03 (=.92)	1.35 (<.001)
Viewing Lab Test Results	1.33 (<.001)	0.98 (<.001)	1.61 (<.001)	1.17 (=.18)	1.04 (=.64)	1.73 (<.001)	0.33 (<.001)	0.75 (<.001)	0.81 (=.10)	0.78 (=.15)	1.03 (=.82)	1.24 (=.23)	1.28 (<.001)
Generation of a Sick Day Certificate	1.39 (<.001)	0.98 (<.001)	1.56 (<.001)	1.31 (=.04)	1.05 (=.64)	1.80 (<.001)	0.25 (<.001)	0.62 (<.001)	0.86 (=.24)	0.87 (=.49)	1.23 (=.24)	1.14 (=.50)	1.37 (<.001)
Setting an Alternative Medicine Visit	1.45 (<.001)	0.98 (<.001)	1.36 (<.001)	1.13 (=.33)	1.00 (=.95)	1.82 (<.001)	0.31 (<.001)	0.64 (<.001)	0.83 (=.15)	1.00 (=.99)	1.04 (=.80)	1.04 (=.91)	1.34 (<.001)
Updating Personal Details	1.38 (<.001)	0.98 (<.001)	1.58 (<.001)	1.31 (=.04)	1.00 (=.95)	1.88 (<.001)	0.29 (<.001)	0.65 (<.001)	0.76 (=.02)	0.86 (=.48)	1.06 (=.66)	1.18 (=.44)	1.32 (<.001)
Setting a Vaccination Visit	1.23 (=.02)	0.98 (<.001)	1.43 (<.001)	1.13 (=.33)	0.97 (=.64)	2.01 (<.001)	0.30 (<.001)	0.64 (<.001)	0.89 (=.33)	0.94 (=.76)	1.34 (=.07)	1.05 (=.90)	1.35 (<.001)
Setting a Specialist Visit	1.33 (<.001)	0.98 (<.001)	1.36 (<.001)	1.27 (=.06)	1.02 (=.70)	1.86 (<.001)	0.31 (<.001)	0.57 (<.001)	0.88 (=.33)	0.99 (=.99)	1.13 (=.45)	1.15 (=.48)	1.28 (<.001)
Prescription Renewal Request	1.49 (<.001)	0.98 (<.001)	1.67 (<.001)	1.28 (=.07)	1.04 (=.64)	1.78 (<.001)	0.22 (<.001)	0.57 (<.001)	0.85 (=.21)	0.95 (=.81)	1.41 (<.001)	1.08 (=.75)	1.27 (<.001)
Setting a Pediatrician Visit	1.42 (<.001)	0.97 (<.001)	1.54 (<.001)	1.25 (=.08)	1.01 (=.81)	1.94 (<.001)	0.30 (<.001)	0.60 (<.001)	0.82 (=.14)	0.93 (=.72)	1.18 (=.32)	1.03 (=.92)	1.21 (<.001)
Setting a Family Physician Visit	1.44 (<.001)	0.98 (<.001)	1.39 (<.001)	1.04 (=.77)	1.02 (=.70)	1.81 (<.001)	0.29 (<.001)	0.59 (<.001)	0.83 (=.17)	0.88 (=.51)	1.17 (=.36)	1.06 (=.84)	1.31 (<.001)
Changing Visit Details	1.40 (<.001)	0.97 (<.001)	1.35 (<.001)	1.08 (=.52)	1.03 (=.64)	1.89 (<.001)	0.30 (<.001)	0.61 (<.001)	0.88 (=.33)	0.86 (=.48)	1.19 (=.32)	1.11 (=.65)	1.25 (<.001)

Discussion

Principal Findings

Adoption of mHealth by patients is a complex and multidimensional process with its own advantages, disadvantages, and barriers. This study was the first to examine the extent to which adults in Israel prefer to receive healthcare services through HMO-mHealth as a substitute for face-to-face interaction, and to identify factors associated with these

preferences. More than 46% of responders were interested in the initial treatment or diagnosis being made through face-to-face interaction rather than through HMO-mHealth apps (represented by the items "Personalized Medical Diagnosis", "Physical Exam by a Physician", and "Receiving Medical Diagnosis Results"). On the other hand, 80% of responders were interested in receiving administrative matters through HMO-mHealth apps (demonstrated in items such as "Changing Visit Details", "Setting a Family Physician Visit", "Prescription Renewal Request"). Meanwhile, 10% to 20% of responders are still interested in receiving administrative matters and information services through a face-to-face meeting. Our axiom is that respondents have adequate digital literacy since the questionnaire was distributed and filled out using a digital tool. However, good digital literacy is not necessarily a guarantee of the ability to use digital health services [1], and the validity of information from mHealth apps that focus on emotional content may influence the adoption of HMO-mHealth services, even among those with high digital literacy [6, 35]. However, the high usage rate of HMO-mHealth in this study can be explained by the Unified Theory of Acceptance and Use of Technology (UTAUT), which states that effort expectancy that defined as the degree of ease of use, affects the acceptance and use of HMO-mHealth [36].Seven main variables were found to be associated with HMO-mHealth adoption, including: gender, age, education, marital .status, religious affiliation, and subjective health condition

Our results showed that women are more likely to adopt HMO-mHealth applications for medical information or administrative services (e.g., "Prescription renewal request," "Setting a family physician visit," and "account details inquiry"). On the other hand, they prefer to receive medical services with treatment or diagnostic significance face-to-face

with physicians (e.g., "Personal medical diagnosis", "medical examination", "receiving the results of medical diagnoses" and "information on treatment options"). This result is interesting because one might assume that gender has a similar effect on the adoption of all HMO-mHealth services and that there are no differences between the different types of services. Previous studies suggest that there are generally no clear trends in gender differences in willingness to adopt mHealth technologies [3, 14, 25, 27, 36-38], and gender is mentioned as a moderating variable in mHealth studies dealing with the UTAUT, and it plays a moderating role with threat appraisal and coping appraisal factors in mHealth adoption behavior [39, 40]. However, traditional face-to-face healthcare is frequently preferred over digital healthcare [1] and women in particular tend to be more skeptical about relying solely on mHealth for treatment, and place higher value on in-person doctor visits [41]. This inclination is likely influenced by greater health anxiety .and risk aversion among women [42-45]

Consistent with previous studies [11, 14, 27, 37], this study also found that age, education, religious affiliation, and ethnicity were barriers to HMO-mHealth adoption. On one hand, people with higher level of education and younger individuals had a higher tendency to adopt HMO-mHealth services compared to older individuals and those with lower level of education, who preferred face-to-face meetings. On the other hand, societal minorities (non-Jews) and religious individuals tended to prefer face-to-face meetings over the adoption of HMO-mHealth services. It is possible that internet use is perceived as more accessible among young people, and those with higher education are perceived as having better digital literacy [4, 46]. However, our study found that people with higher level of education and younger individuals who have a lower subjective health condition

generally prefer face-to-face meetings. Based on this finding, it can be assumed that despite the effectiveness of HMO-mHealth services, human contact with a health .provider is still necessary for diagnosis and treatment in young and educated people

This study also found that ethnic minorities (non-Jewish) and religious people would prefer face-to-face meetings over HMO-mHealth for all healthcare provider services examined in this study. There is evidence of the effectiveness of internet-based interventions that improve the health of ethnic minorities [47]. These groups reported interest in using mHealth technologies, greater than the non-minority population [48]. A recent study found that there are significant ethnic differences in the use of telemedicine between different ethnic groups [27]. At the same time, however, the association of religion with the adoption of health technologies has, to our knowledge, not yet been sufficiently investigated. The adoption of technologies by religious people is considered at higher-than-average risk, and previous studies have shown that religious leaders can influence the opinions and behaviors of religious people when adopting medical technologies [49]. We link these two facts because we believe that barriers to HMO-mHealth adoption can be associated with ethnicity and religion. Both cultural and community characteristics, language barriers, emotional state, health and digital literacy can be assumed to play an important role in HMO-mHealth adoption [46, 50]. A study examining the influence of cultural aspects on the adoption of mHealth in three different countries, based on the UTAUT, found that cultural differences have a decisive effect on the adoption behavior model. It concluded that mHealth services must be adapted to the .culture of the population for which the services are developed [51]

Greater involvement of minorities in the development of HMO-mHealth will lead to the adoption of these tools by minorities [52], and the involvement of leaders from these communities in the development of technological medical products will enable broader .adoption of HMO-mHealth in these populations

Another interesting finding of this study is that married people would prefer to adopt HMO-mHealth over face-to-face meetings. A systematic literature review and narrative synthesis showed that the effects of marital status on mHealth uptake are inconsistent across studies. Some studies suggest that marital status has no significant effect on the use of mHealth services, while others propose possible differences in the intention to use depending on marital status [53]. In our opinion, addressing family health needs and marital responsibilities can increase interest in technologies that improve health monitoring and save time. Since there is a gender dynamic in most marital relationships regarding domestic responsibilities and health care decisions, this is likely to have an .impact on the adoption of HMO-mHealth

This study raises an interesting question: Who HMO-mHealth services really intended for? In this study, it was found that patients with chronic diseases do not prefer to use HMO-mHealth services. Conversely, people who describe their subjective health as good are more likely to use HMO-mHealth services. It is generally assumed that patients with chronic diseases will adopt more mHealth services [54], as mHealth is seen as part of medical practice and a factor that can support patients with chronic diseases [37]. There is evidence in the literature that subjective health condition is a factor that influences the use of digital means to access healthcare services [55]. However, studies show that with the presence of a chronic disease does not predict demand for medical services [54, 56-

58]. It can be assumed that the supportive family of a patient with chronic diseases will .reduce the need for HMO-mHealth services [58]

Strengths and Limitations

Our study has several limitations. First, due to the cross-sectional nature of the study, it is not possible to establish causation or demonstrate cause-and-effect relationships. . Second, the data was self-reported. The researchers were not able to assess whether the questionnaire was completed during work or leisure time or whether health limitations influenced the completion of the questionnaire. Third, the services in the HMO-mHealth apps are similar, but the interaction between the patient and the healthcare provider in the app may be different. It is possible that a better response from the healthcare provider for certain services in the HMO-mHealth apps could influence the information collected in the questionnaire. Fourth, health literacy was not examined in this study. It is likely that the level of health literacy may also influence patients' interactions with HMO-mHealth .services

Conclusions and Future Directions

HMO-mHealth proves to be a robust and efficient tool for healthcare service delivery when compared to face-to-face healthcare interaction. However, barriers that affect vulnerable populations in HMO-mHealth adoption still exist. HMO-mHealth services will not be able to completely replace face-to-face interactions with healthcare providers and will be a complementary tool for face-to-face meetings with therapists. The utilization of health applications within health services constitutes an increasingly substantial component of the communication interface between the healthcare system and

its patients, accompanied by a rise in the array of services offered through HMO-mHealth. On one hand, this study's outcomes furnish insights for policymakers engaged in the development of HMO-mHealth services, facilitating the formulation of culturally sensitive HMO-mHealth services. On the other hand, there exists a compelling necessity for policymakers to institute a comprehensive training regimen aimed at equipping patients with the requisite skills for utilizing HMO-mHealth. This is particularly imperative for aiding demographic segments such as the elderly, chronically ill patients, and societal minorities, who are in greater need of these services. Healthcare providers need to develop intervention plans for accessibility, adaptation, and implementation of HMO-mHealth in this population. Such adaptations are essential to mitigating healthcare inequalities in Western societies. To provide an optimal response to these populations, future studies should focus on identifying the barriers that affect the utilization of HMO-mHealth in these groups. Future studies should also use longitudinal design to better establish cause-and-effect relationships between variables, assess health literacy, which is a potential factor in the adoption of HMO-mHealth, include comparisons with mHealth adoption in other countries. These future studies could significantly enhance our .understanding of cultural and systemic variations

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Data Availability

The data sets generated and analyzed during this study are available from the corresponding author upon reasonable request, subject to approval by the Ethics .Committee of Ariel University

Conflict of Interest

.None declared. This study did not receive any financial support

Authors' Contributions

AZ Contributed to the data curation, investigation, methodology, project administration, visualization, original draft preparation. OR contributed to the formal analysis, methodology, visualization, and supervision. MZ and OZ contributed to the investigation, methodology, resources. All authors reviewed and commented on subsequent drafts of this paper and approved the final version of this paper for publication. No generative AI .was used in any portion of this paper

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Abbreviations

mHealth: mobile Health

HMO: Health Maintenance Organization

GP: General Practitioners

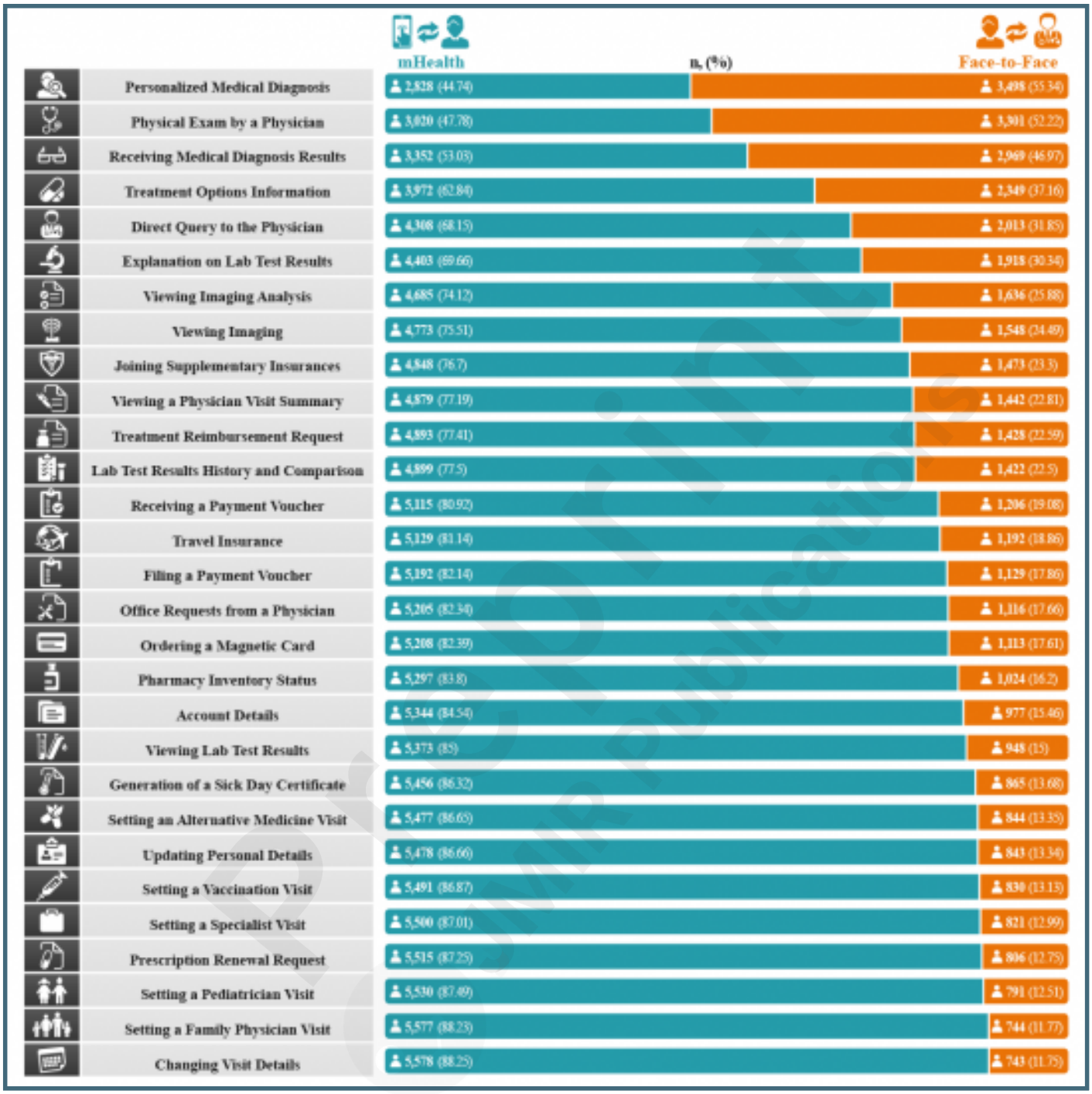
NHS: National Health Service

UTAUT: Unified Theory of Acceptance and Use of Technology

Supplementary Files

Figures

Preference for receiving healthcare services using HMO-mHealth apps or Face-to-Face interaction.



Factors associated with adoption of HMO-mHealth vs. face-to-face interaction - multivariable logistic models.

Healthcare services \ Main Characteristics	Female OR (P)	Age OR (P)	Married OR (P)	Born in Israel OR (P)	Children OR (P)	Academic OR (P)	Non-Jewish OR (P)	Religious OR (P)	Living in the north OR (P)	Living in the south OR (P)	Living in Jerusalem area OR (P)	Chronic disease OR (P)	Subjective health condition OR (P)
Personalized Medical Diagnosis	0.74 (<.001)	1.00 (=.19)	1.31 (<.001)	1.21 (=.04)	0.98 (=.64)	1.00 (=.99)	0.79 (<.001)	0.86 (=.01)	0.99 (=.85)	0.87 (=.29)	0.89 (=.25)	0.95 (=.75)	1.16 (<.001)
Physical Exam by a Physician	0.82 (<.001)	0.99 (=.05)	1.34 (<.001)	1.14 (=.12)	0.99 (=.81)	1.10 (=.07)	0.70 (<.001)	0.78 (<.001)	1.05 (=.55)	0.79 (=.07)	0.80 (<.001)	1.00 (=.95)	1.16 (<.001)
Receiving Medical Diagnosis Results	0.70 (<.001)	1.00 (=.25)	1.28 (<.001)	1.17 (=.07)	1.02 (=.64)	1.14 (=.011)	0.82 (<.001)	0.86 (<.001)	0.93 (=.41)	0.83 (=.15)	0.88 (=.23)	0.92 (=.52)	1.13 (<.001)
Treatment Options Information	0.79 (<.001)	0.99 (<.001)	1.28 (<.001)	1.02 (=.77)	1.03 (=.64)	1.22 (<.001)	0.64 (<.001)	0.78 (<.001)	0.95 (=.56)	0.76 (<.001)	0.95 (=.57)	0.99 (=.95)	1.23 (<.001)
Direct Query to the Physician	0.96 (=.57)	0.99 (=.012)	1.58 (<.001)	1.28 (<.001)	1.06 (=.39)	1.32 (<.001)	0.49 (<.001)	0.71 (<.001)	0.91 (=.33)	0.75 (<.001)	0.81 (<.001)	1.14 (=.44)	1.11 (=.02)
Explanation on Lab Test Results	1.01 (=.91)	0.99 (=.02)	1.64 (<.001)	1.15 (=.14)	1.00 (=.95)	1.40 (<.001)	0.55 (<.001)	0.82 (<.001)	0.91 (=.34)	0.92 (=.57)	0.95 (=.57)	1.21 (=.19)	1.21 (<.001)
Viewing Imaging Analysis	1.02 (=.87)	0.98 (<.001)	1.53 (<.001)	1.08 (=.40)	1.04 (=.64)	1.43 (<.001)	0.46 (<.001)	0.73 (<.001)	0.77 (<.001)	0.79 (=.12)	0.94 (=.57)	1.30 (<.001)	1.22 (<.001)
Viewing Imaging	1.06 (=.45)	0.98 (<.001)	1.43 (<.001)	1.13 (=.18)	1.06 (=.39)	1.44 (<.001)	0.39 (<.001)	0.75 (<.001)	0.77 (<.001)	0.80 (=.15)	0.91 (=.45)	1.18 (=.24)	1.15 (=.01)
Joining Supplementary Insurances	0.99 (=.91)	0.99 (<.001)	1.24 (=.01)	1.09 (=.38)	0.98 (=.64)	1.46 (<.001)	0.40 (<.001)	0.69 (<.001)	0.76 (<.001)	0.80 (=.15)	0.94 (=.57)	0.99 (=.95)	1.28 (<.001)
Viewing a Physician Visit Summary	1.10 (=.21)	0.98 (<.001)	1.55 (<.001)	1.21 (=.07)	1.03 (=.64)	1.64 (<.001)	0.35 (<.001)	0.67 (<.001)	0.80 (=.02)	0.71 (<.001)	0.87 (=.26)	1.12 (=.48)	1.22 (<.001)
Treatment Reimbursement Request	0.95 (=.52)	0.98 (<.001)	1.37 (<.001)	1.26 (=.04)	1.06 (=.39)	1.76 (<.001)	0.40 (<.001)	0.67 (<.001)	0.88 (=.32)	0.83 (=.22)	1.31 (=.41)	1.03 (=.91)	1.34 (<.001)
Lab Test Results History and Comparison	1.10 (=.21)	0.99 (<.001)	1.63 (<.001)	1.15 (=.16)	0.98 (=.70)	1.51 (<.001)	0.39 (<.001)	0.83 (<.001)	0.83 (=.09)	0.90 (=.51)	1.01 (=.91)	1.34 (<.001)	1.27 (<.001)
Receiving a Payment Voucher	1.30 (<.001)	0.98 (<.001)	1.70 (<.001)	1.44 (<.001)	1.03 (=.64)	1.62 (<.001)	0.28 (<.001)	0.68 (<.001)	0.75 (<.001)	0.80 (=.15)	1.10 (=.51)	1.22 (=.23)	1.24 (<.001)
Travel Insurance	1.05 (=.57)	0.99 (<.001)	1.30 (<.001)	1.23 (=.06)	0.98 (=.64)	1.60 (<.001)	0.41 (<.001)	0.78 (<.001)	0.78 (<.001)	0.80 (=.15)	1.13 (=.36)	1.13 (=.48)	1.38 (<.001)
Filing a Payment Voucher	1.17 (=.05)	0.99 (<.001)	1.46 (<.001)	1.32 (<.001)	1.03 (=.64)	1.73 (<.001)	0.30 (<.001)	0.68 (<.001)	0.79 (=.02)	0.89 (=.51)	1.19 (=.25)	1.15 (=.48)	1.31 (<.001)
Office Requests from a Physician	1.35 (<.001)	0.98 (<.001)	1.58 (<.001)	1.17 (=.17)	1.05 (=.64)	1.82 (<.001)	0.29 (<.001)	0.66 (<.001)	0.79 (=.02)	0.84 (=.31)	0.97 (=.80)	1.12 (=.58)	1.36 (<.001)
Ordering a Magnetic Card	1.08 (=.41)	0.98 (<.001)	1.25 (=.01)	1.19 (=.13)	1.04 (=.64)	1.69 (<.001)	0.36 (<.001)	0.64 (<.001)	0.77 (=.02)	0.80 (=.15)	1.07 (=.57)	1.07 (=.75)	1.34 (<.001)
Pharmacy Inventory Status	1.18 (=.05)	0.98 (<.001)	1.39 (<.001)	1.12 (=.33)	1.01 (=.90)	1.80 (<.001)	0.29 (<.001)	0.61 (<.001)	0.77 (=.02)	0.83 (=.29)	0.95 (=.66)	1.03 (=.92)	1.25 (<.001)
Account Details	1.23 (=.02)	0.99 (=.14)	1.29 (=.01)	1.30 (=.04)	0.99 (=.90)	1.74 (<.001)	0.34 (<.001)	0.69 (<.001)	0.89 (<.001)	0.92 (=.62)	1.07 (=.57)	1.03 (=.92)	1.35 (<.001)
Viewing Lab Test Results	1.33 (<.001)	0.98 (<.001)	1.61 (<.001)	1.17 (=.18)	1.04 (=.64)	1.73 (<.001)	0.33 (<.001)	0.75 (<.001)	0.81 (=.10)	0.78 (=.15)	1.03 (=.82)	1.24 (=.23)	1.28 (<.001)
Generation of a Sick Day Certificate	1.39 (<.001)	0.98 (<.001)	1.56 (<.001)	1.31 (=.04)	1.05 (=.64)	1.80 (<.001)	0.25 (<.001)	0.62 (<.001)	0.86 (=.24)	0.87 (=.49)	1.23 (=.24)	1.14 (=.58)	1.37 (<.001)
Setting an Alternative Medicine Visit	1.45 (<.001)	0.98 (<.001)	1.36 (<.001)	1.13 (=.33)	1.00 (=.95)	1.82 (<.001)	0.31 (<.001)	0.64 (<.001)	0.83 (=.15)	1.00 (=.99)	1.04 (=.80)	1.04 (=.91)	1.34 (<.001)
Updating Personal Details	1.38 (<.001)	0.98 (<.001)	1.58 (<.001)	1.31 (=.04)	1.00 (=.95)	1.88 (<.001)	0.29 (<.001)	0.65 (<.001)	0.76 (=.02)	0.88 (=.48)	1.06 (=.66)	1.18 (=.44)	1.32 (<.001)
Setting a Vaccination Visit	1.23 (=.02)	0.98 (<.001)	1.43 (<.001)	1.13 (=.35)	0.97 (=.64)	2.01 (<.001)	0.30 (<.001)	0.64 (<.001)	0.89 (=.33)	0.94 (=.76)	1.34 (=.07)	1.05 (=.96)	1.35 (<.001)
Setting a Specialist Visit	1.33 (<.001)	0.98 (<.001)	1.36 (<.001)	1.27 (=.06)	1.02 (=.70)	1.86 (<.001)	0.31 (<.001)	0.57 (<.001)	0.88 (=.33)	0.99 (=.99)	1.13 (=.45)	1.15 (=.48)	1.28 (<.001)
Prescription Renewal Request	1.49 (<.001)	0.98 (<.001)	1.67 (<.001)	1.28 (=.07)	1.04 (=.64)	1.78 (<.001)	0.22 (<.001)	0.57 (<.001)	0.85 (=.21)	0.95 (=.81)	1.41 (<.001)	1.08 (=.75)	1.27 (<.001)
Setting a Pediatrician Visit	1.42 (<.001)	0.97 (<.001)	1.54 (<.001)	1.25 (=.08)	1.01 (=.81)	1.94 (<.001)	0.30 (<.001)	0.60 (<.001)	0.82 (=.14)	0.93 (=.72)	1.18 (=.32)	1.03 (=.92)	1.21 (<.001)
Setting a Family Physician Visit	1.44 (<.001)	0.98 (<.001)	1.39 (<.001)	1.04 (=.77)	1.02 (=.70)	1.81 (<.001)	0.29 (<.001)	0.59 (<.001)	0.83 (=.17)	0.88 (=.51)	1.17 (=.36)	1.06 (=.84)	1.31 (<.001)
Changing Visit Details	1.40 (<.001)	0.97 (<.001)	1.35 (<.001)	1.08 (=.52)	1.03 (=.64)	1.89 (<.001)	0.30 (<.001)	0.61 (<.001)	0.88 (=.33)	0.86 (=.48)	1.19 (=.32)	1.11 (=.65)	1.25 (<.001)