



Attitude and Motivators of Community Dwelling Older Adults Toward Using Mobile Health Technology

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Abstract

Background: Mobile health technology presents opportunities for health management in older adults. Although it can enhance monitoring and communication with healthcare providers, there are barriers that may impede its adoption. **Aim of the study:** Evaluate attitude and motivators of community dwelling older adults toward using mobile health technology. **Subjects and Methods:** **Research design:** Descriptive design. **Setting:** The study was conducted at Fadadna village, Fakous city, Sharkia governorate, Egypt, which was randomly selected by using the multistage cluster sampling technique. **Subjects:** The study subjects were 300 rural older adults, a purposive sample was used. **Tools of data collection:** An interview questionnaire composed of three parts: demographic characteristics of the studied older adults, health profile of the studied older adults, Characteristics of mobile health technology, the Digital Health Scale (DHS), and motivators toward using mobile technology for health care questionnaire. **Results:** The study revealed that 55.0% of the studied older adults negative attitude and 52.0% had low motivation toward using mobile health technology. **Conclusion:** There was highly statistically significant positive correlation between total older adults motivators score and total attitude score. **Recommendation:** Launch public awareness campaigns to highlight the benefits of mobile health technologies for older adults, focusing on improving independence and health outcomes.

Keywords: Attitude, Community Dwelling Older Adults, Mobile Health Technology, Motivators.

Introduction

The global demographic shift toward an aging population has intensified attention on the health and well-being of older adults. With increasing life expectancy and declining birth rates, the proportion of individuals aged 60 years and above continues to rise. A significant number of these older adults remain community dwelling, living in their own homes and neighborhoods rather than in institutionalized care settings. While this independence offers psychological and social benefits, it also presents unique challenges in managing chronic diseases, preventing functional decline, and ensuring continuous access to health care services. Within this context, mobile health technology, often referred to as mHealth, has emerged as a transformative tool capable of bridging gaps in care and supporting the independence of community dwelling older adults (Li Zhang, 2021).

Community dwelling older adults represent a group that can greatly benefit from the advancement of mobile health technologies, yet their acceptance and use remain dependent on the interplay of attitudes,



motivators, and obstacles. Understanding these dimensions is vital for healthcare providers, policymakers, and technology developers who aim to promote active aging and support the independence of older individuals. A comprehensive exploration of attitudes, motivators, and barriers will not only inform better technological designs but also provide practical strategies for integrating mHealth into the everyday lives of older adults, ensuring equity and inclusiveness in digital health adoption (Hepburn et al. 2025).

Mobile health technology (mHealth) is especially important for older adults because it helps them manage their health more easily and independently. Through mobile apps and wearable devices, seniors can monitor vital signs such as blood pressure, heart rate, and glucose levels from home. mHealth also enables remote communication with doctors and caregivers, reducing the need for frequent hospital visits. This technology supports medication reminders, promotes physical activity, and helps detect early signs of illness. Overall, mHealth improves the quality of life, safety, and well-being of older adults by keeping them connected to healthcare services anytime and anywhere (Cheah et al. 2024).

Mobile Health Technology refers to the use of mobile devices such as smartphones, tablets, and wearable sensors to support and improve health care services. It allows patients to monitor their health conditions, track fitness activities, and receive medical advice remotely. Doctors can use mHealth apps to collect patient data, send reminders for medication, and conduct virtual consultations. This technology helps make health care more accessible, especially in remote areas, and promotes healthier lifestyles by encouraging people to take an active role in managing their well-being (Choma et al. 2023).

Attitudes of older adults toward mobile health technology are central to understanding its acceptance and effectiveness. Attitude refers to the individual's predisposition to evaluate and respond positively or negatively to the use of digital health tools. Many older adults express curiosity and openness to using mobile health applications, particularly when they perceive them as useful for medication management, disease monitoring, and communication with healthcare providers. However, the overall attitude is often mixed, with enthusiasm counterbalanced by apprehension about usability, trust, and data security. In fact, the perception of ease of use remains one of the strongest predictors of whether older adults will develop positive attitudes toward adopting mobile health technologies (Buawangpong et al. 2025).

Motivators play a crucial role in encouraging community dwelling older adults to engage with mHealth tools. One primary motivator is the desire to maintain independence and autonomy in daily life. By allowing older adults to monitor their blood pressure, glucose levels, or physical activity at home, mHealth empowers them to take active roles in managing their health. Another important motivator lies in the support from family members and caregivers, who often introduce and facilitate the use of technology for older relatives. Additionally, the promise of improved quality of life, reduced hospital visits, and more timely access to professional guidance strengthens the willingness to adopt mobile health technologies. In recent years, the COVID-19 pandemic has also accelerated interest in mHealth, as older adults recognized its value in minimizing exposure risks while maintaining continuity of care (Johari et al. 2025).

Gerontological nurses play a vital role in mobile health technology by helping patients use digital tools to manage their health effectively. They educate patients—especially older adults—on how to use mobile apps, wearable devices, and telehealth platforms to monitor their conditions. Nurses also use mHealth systems to track patients' progress, send reminders for medications, and provide remote consultations or follow-ups. In addition, they analyze health data collected through mobile devices to identify potential risks and intervene early. By integrating mHealth into their practice, nurses improve patient engagement, enhance care coordination, and promote better health outcomes (Bakker et al.



2023).

Significance of the Study:

With rapidly growing older adult's population, new information and communication technologies is particularly crucial as risks for functional decline and independence loss increase with aging process and development of chronic diseases. Using mobile technology for health care may help in compliance with medication by prompting alerts, provide older adults with self-care guidance, facilitate self-monitoring of various biometrics, or provide education on disease management (Alfayomy & Gomaa, 2023).

Moreover, the actual use and adoption of mobile health technologies by older adults is low and inconsistent, and using mobile health technology among community dwelling older adults has only been evaluated in a few studies worldwide. Hence, the current study will be conducted to assess attitude, motivators, and obstacles of community dwelling older adults toward using mobile health technology.

Aim of the study:

The current study aimed to evaluate attitude and motivators of community dwelling older adults toward using mobile health technology.

Research questions:

- What is the attitude of community dwelling older adults toward using mobile health technology?
- What are the motivators of community dwelling older adults toward using mobile health technology?

Subjects and methods:

Research design:

To conduct this study, descriptive research design was utilized.

Study setting:

The current study was carried out in Fadadna village, which was selected using a multistage cluster sampling technique.

Study subjects:

A purposive sample of 300 older adults selected from the above-mentioned village based on the following inclusion criteria:

- Aged 60 years and older.
- Can read and write.
- Free from communication problems (speech and hearing problems).
- Agree to participate in the study.

Exclusion criteria:

- Older adults who have mental or psychological diseases.

Tool for data collection:

Tool I Tool I: A structure interview questionnaire :

It was developed by the researcher to collect the necessary data for the study. It consisted of three parts.

Part 1: Demographic characteristics of the studied older adults .

This part used to entails data about the demographic characteristic of the studied older adults and includes; Age, sex, marital status, level of education, residence... etc.

Part 2: Health profile of the studied older adults.

This part concerned with the medical history and medications used of the studied older adults.

Part 3: Mobile health technology characteristics

This part included data such as definition, types, uses, duration, frequency of use, and complains related to mobile health technology use.



Tool II: The Digital Health Scale (DHS):

This scale was developed by Cassidy (2021), it was a self-report measure of attitudes toward digital health technology. This scale consisted of 19 statements representing the various components of attitudes; emotion, behavior, cognition, and the various aspects and issues related to the use of technology in health care such as ease of use, reliability, and privacy.

Scoring system:

Items were scored using a 3-point likert scale that ranges from 2 “completely agree”, 1 “somewhat agree”, zero “completely disagree”. Items 3, 7, 12, 15, 17, 18, 19 had reverse scores. The scores of the items were summed up and the total divided by the number of items, giving a mean score. These scores were converted into percent scores. The total grade was (38) grade and the older adults were considered to have positive attitude if the percent score was 75% or more (≥ 29 grade), neutral attitude if the percent score was from 50% to less than 75% (19-28 grade), and negative attitude if the percent score was less than 50% (< 19 grade).

Tool III: Motivators toward using mobile technology for health care questionnaire:

This questionnaire was developed by the researcher and guided by Kuerbis et al. (2017). It was used to evaluate motivators of community dwelling older adults toward using mobile technology for health care, with higher scores indicating greater motivation toward using mobile health technology.

Scoring system:

Items were rated on 3-point Likert scale ranging from 2 “completely agree”, 1 “somewhat agree”, zero “completely disagree”. The score of the items were summed up and the total divided by the number of items, giving a mean score. These scores were converted into percent scores. The total grade was (28) grade and older adults were considered to have high level of motivation if the percent score was 75% or more (≥ 21 grade), moderate level if the percent score was from 50% to less than 75% (14 – 20 grade), and low level if the percent score was less than 50% (< 14 grade).

Content validity and reliability:

The tools were revised by three experts in the field of Community health nursing, Faculty of Nursing, Zagazig University, Psychiatric and mental health nursing, Faculty of Nursing, Zagazig University, and public health and community, Faculty of Medicine, Zagazig University, where the panel reviewed the tools content for relevance, clarity, comprehensiveness, and understandability. All recommended modifications were applied.

The reliability of tools was tested by measuring their internal consistency. It demonstrated a good level of reliability with cronbach's alpha in the following table:

Scales	NO of items	Cronbach's Alpha	Internal consistency
Attitude toward using mobile health technology	19	0.910	Excellent
Motivators toward using mobile health technology	14	0.965	Excellent

Field work:

Once permission was granted to progress with the study, the researcher started to organize a schedule for collecting the data by dividing village into streets (clusters) with the assistance of mayor who assigned a facilitator in the same village to facilitate the researcher's work. The researcher asked for the older adults in the village. The researcher visited to the study setting for interviewing the elderly who fulfill the criteria and introduced herself to the older adults. The aim and nature of the study discussed



briefly and reassured them that information obtained is strictly confidential and would not be used for any purposes other than research. The purpose of the study was explained to each elderly individually, and then the elderly were asked to participate in the study. The study tool questionnaires were answered by each patient privately.

Both elderly both males and females were interviewed individually in their home to collect the necessary data. Time estimated for filling out the questionnaire sheets ranged from 20-25 minutes for elderly. The researcher visited the village 3days/week (Thursday, Wednesday, and Tuesday) from 1PM to 7PM. The fieldwork was executed over six months (the period extended from the beginning of September 2024 up to the end of February 2025).

Pilot study:

Before performing the main study, a pilot study was carried out on 30 older adults from the study setting, constituting about 10% of the calculated sample for main study. They were selected from the selected setting and were later excluded from the main study sample of research work to assure stability of the answers. The purposes of pilot were to test the questions for any obscurity, and to assess the practicability and feasibility of using the structured interview questionnaire sheet for the older adults. It also helped the researcher to determine the time needed for filling out the questionnaire sheets. The tools were finalized after making necessary modifications according to the pilot study results.

Administration and ethical consideration:

First, using the code M.D.ZU.NUR\244\9\7\2024, the study proposal was approved by the Post Graduate Committee and Research Ethics Committee (REC) of the Zagazig University Faculty of Nursing. The study's goals and the senior patients' ability to withdraw or not participate at any time without explanation were then verbally explained to them. Additionally, following a thorough explanation of the study's purpose, each elderly patient voluntarily gave their informed consent to participate. The older patients were made aware that they could choose not to participate in this trial. Additionally, they received assurances that any data collected from them would be kept private and utilized exclusively for research.

Statistical analysis:

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for categorical data, the mean (X) and standard deviation (SD) for quantitative data. Chi square test used to assess the association between two variables. Correlation coefficient test (r) was used to test the correlation between studied variables. Linear regression model was used to examining the predictors of older adults' attitude, motivators and perception towards obstacles to learning and using mobile health technology among older adults. Reliability of the study tools was done using Cronbach's Alpha.

Degrees of significance of results were considered as follows:

- P-value ≥ 0.05 Not significant.
- P-value < 0.05 Significant.
- P-value < 0.01 Highly Significant.

Results:

According to **Table 1**, 67.0% of the studied older adults were aged between 70-79 years old, with mean 73.69 ± 5.96 years. Also, 57.0% of them were males. Furthermore, 74.0% of them reside at rural areas. Moreover, 59.0% of them were married. Also, 36.7% of them had secondary education. Likewise, 85.0% of them don't work. Also, 71.3% of them live with their families. Concerning Income, their Income was insufficient (66.0%) and pension was the source of income in 72% of them.



Figure (1) sketches that, 55.0% of the studied older adults had negative attitude toward using mobile health technology. Also, 33% of them had neutral attitude.

Figure (2) illustrates that, 52.0% of the studied older adults had low level of motivation toward using mobile health technology. Also, 30% of them had moderate level of motivation.

Table (2) indicates that, there was highly statistically significant positive correlation between total older adults attitude score and total motivators score

Table (3) reveals that university education and total motivators score were statistically significant positive predictors of older adults' attitude score. While, the statistically significant negative predictor of older adults' attitude score was total obstacles score.

Table (4) demonstrates that the statistically significant positive predictors of older adults' motivators score were university education and total attitude score. While, total obstacles score was statistically significant negative predictor of older adults' motivator score

Discussion:

Aging is associated with increased incidence of chronic diseases resulting in reduced older adults physical and psychosocial health which need frequent and regular monitoring and follow up. Mobile health technology use associated with improved their health literacy, self-care, independence, and wellbeing (**Wadhwa & Meena, 2023**). Application of mobile technology in the health care system are becoming urgent issue to assist older adult to monitor their health, transmit the health-related information and manage their chronic diseases independently (**Wadhwa & Meena, 2024**).

Concerning total attitude toward using mobile health technology, the current study represented that more than half of the studied older adults had negative attitude toward using mobile health technology. This result answered the research question "What is the attitude of community dwelling older adults toward using mobile health technology?". This might be attributed to older adults may face challenges related to digital literacy, physical limitations such as visual or motor impairments, or skepticism about the usefulness and reliability of technology in managing their health. These barriers can result in discomfort, fear, or resistance toward using mobile health applications, leading to a predominantly negative attitude

Also, presence of some obstacles to learn and use mobile health technology as low educational level, lack of smart phone, no Wi-Fi connection, and complex online hospital system. Another reason might be that older adults had inadequate skills to use mobile application in addition to reduced physical and cognitive capabilities with aging, that affect their ability to learn. This result is congruent with a study carried out by **Alfayomy & Gamaa (2023)** in Egypt, who stated that 54.1% of the studied older adults had negative attitude toward using mobile technology for health care.

The current findings align with **Pucer et al. (2024)** in the United States, who reported that although about 65% of older adults recognized the benefits of mobile health technology, actual adoption remained low at only 30% due to privacy concerns and limited technological skills. Similarly, **Haase et al. (2021)** in Canada found that difficulties with new technologies prevented approximately 70% of older adults from using them. In contrast, **Harris et al. (2022)** in the United States indicated that around 68% of older adults showed positive attitudes toward using smart health technology. These variations may reflect differences in study settings and sample characteristics.

Pertaining the studied older adults' total motivators toward using mobile health technology, the current study reflected that more than half of the studied older adults had low level of motivation. This result answered the research question "What are the motivators of community dwelling older adults toward using mobile health technology?". This might be due to age-related challenges such as limited technological literacy, fear of making errors, and lack of confidence in using digital devices. Additionally, physical limitations like impaired vision or reduced fine motor skills, along with cognitive decline, can make interaction with mobile health applications more difficult.

Additionally, social factors, such as limited support from family or caregivers in learning and using new



technology, and concerns about privacy or trust in digital tools, might also play a role. In this concern, a study carried out by **Wong et al. (2023)** in Malaysia, reported low motivation in adopting mHealth technologies among 54.2% of the elderly .

This result matched with a study conducted by **Trinh et al. (2024)**, in USA and declared that 64.9% of the studied older adults had low level of motivation to use digital health portals. In the same context, a study performed by **Almulhem (2023)** in Saudi Arabia, and stated that, 68.5% of elderly individuals had low motivation to adopt mobile health technologies. On contrary, **Wilson et al. (2021)** who performed a study in Australia and reported that 61.5% of studied older adults are willing to engage in existing mobile interventions for health reasons. This contradiction might be due to differences in cultural, social, and technological contexts between countries, which could shape older adults' perceptions and willingness to use digital health solutions.

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Moreover, older adults often had limited digital literacy, lack of prior exposure to smartphones or health applications, and difficulties in adapting to rapidly changing technologies. In addition, age-related factors such as declining vision, hearing, and fine motor skills can make interaction with small screens and complex interfaces challenging.

According to demographic data of the studied community dwelling older adults, the present study showed that more than two thirds of the studied older adults were aged between 70-79 year, with mean 73.69 ± 5.96 years. This might be related to this age group was the targeted population for this study and might reflect a demographic trend or an increasing population within this age range .

This result was supported by **Haase et al. (2021)** who conducted a study in Canada reported that the mean age of the studied older adults was 72.34 ± 7.21 year. Also, a study in China performed by **Wang & Zhao (2023)** who noticed that 51.4% of the studied participants aged 60–64 years old

In addition, the current study demonstrated that more than half of the studied older adults were males. This result is in a harmony with a study carried out by **Mohamed et al. (2022)** in Egypt and reported that 65.1% of the studied elderly were male.

As well, the current study represented that most of the studied older adults are not working. Also, more than two thirds of them live with their families. This might be attributed to social dynamics and support networks available to this population. This result is congruent with a study in United States conducted by **Wang et al. (2019)** who reported that 87.8% of the studied elderly were not working and 89.5% live with the family .

Furthermore, the present study indicated that about two thirds of the studied older adults had insufficient income and pension was the source of income among nearly three quarters of them. This might be due to the limited financial opportunities available to older adults after retirement. In the same line, a study conducted by **Lee et al. (2024)** in United States reported that 50% of the studied elderly had insufficient household income and retirement pension was the source of income among 89% of them.



Concerning multiple linear regression model examining the predictors of older adults' attitude toward using mobile health technology, the current study showed that university education and total motivators score were statistically significant positive predictors of older adults' attitude score, while the statistically significant negative predictor of older adults' attitude score was total obstacles score. This might be due to the fact that individuals with university education are more likely to possess higher levels of digital literacy and critical thinking skills, which can enhance their openness and confidence in adopting new technologies such as mobile health applications.

Additionally, a higher total motivators score may reflect stronger perceived benefits, social support, or personal interest in using mobile health technology, all of which can contribute positively to shaping a favorable attitude. On the other hand, the perceived barriers such as usability challenges, privacy concerns, or lack of technical support can significantly hinder older adults' willingness to engage with mobile health technology.

These findings are in harmony with a study in Indonesia carried out by **Seifert et al. (2021)** who highlighted that older adults with higher education levels are more inclined to use mobile health applications, attributing this to better understanding and navigation of technology. Consistently, this result is in agreement with **Wang et al. (2023)** who carried out a study in China, pointed out that obstacles can lead to decreased intention to use mobile health technologies.

As regard multiple linear regression model examining the predictors of older adults' motivators toward using mobile health technology, the current study revealed that the statistically significant positive predictors of older adults' motivators score were university education and total attitude score. While, total obstacles score was statistically significant negative predictor of older adults' motivator score. This could be interpreted as higher education and a more positive attitude significantly enhance older adults' motivation to use mobile health technology, while greater perceived obstacles reduce their motivation. This finding is supported by a scoping review conducted by **Ahmad et al. (2022)** in Malaysia, which reported that older adults frequently experience barriers related to limited digital literacy, lack of perceived ability, and low motivation toward adopting mobile applications for health interventions.

This result is in accordance with a study in USA carried out by **Trinh et al. (2024)** highlighted that older adults with higher education levels are more likely to adopt mobile health technologies due to better technological literacy and confidence. Likewise, the study in United Kingdom by **Awan et al. (2021)**, who found that positive attitudes toward technology significantly enhance willingness to adopt mobile and wearable health technologies.

Conclusion:

Based upon the findings of the current study and answers of the research questions, It was concluded that the studied older adults had negative attitude and low motivators toward learning and using mobile health technology. There was highly statistically significant positive correlation between total older adults motivators score and total attitude score.

Recommendations:

In the light of the findings of the current study, the following recommendations are suggested:

- Mobile health technology should be designed with simple, clear, and easy to use features to make them more accessible to older adults.
- Training sessions should be organized in community centers and healthcare facilities to help older adults learn how to use mobile health technologies confidently.
- Developing educational programs to enhance older adults' attitude and motivation toward using mobile health technology



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AUTHOUR'S CONTRIBUTIONS

E.S.A; made the study's concept and design. R.A.A and N.E.M; conducted interpretation and analysis of data. E.S.A. and R.A.A; drafted the Article, revising it critically. N.E.M; wrote the paper and edition. The final manuscript participated, revised and approved by all authors.

DECLARATION OF CONFLICTING INTERESTS

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Table (1): Frequency distribution of the studied older adults according to their demographic data (n=300).

Demographic data	No.	%
Age		
60-69	75	25.0
70-79	201	67.0
≥80	24	8.0
Mean ± SD	73.69 ± 5.96	
Gender		
Male	171	57.0
Female	129	43.0
Marital status		
Single	6	2.0
Married	177	59.0
Divorced	24	8.0
Widow	93	31.0
Educational level		
Read and write	53	17.7
Basic education	98	32.6
Secondary education	110	36.7
University/ postgraduate education	39	13.0
Current work		
Don't work	255	85.0
Work	45	15.0
If work, what is the job? (n=45)		
Free business	32	71.1
Farmer	13	28.9
Living with whom		
Family	142	3.17
Alone	86	28.7
Monthly income		
Insufficient	198	66.0
Sufficient	90	30.0
Sufficient and saving	12	4.0
*Sources of income		
Pension	216	72.0
Sons helps	78	26.0
Official social assistance	3	1.0
Income properties	3	1.0

SD: Standard deviation

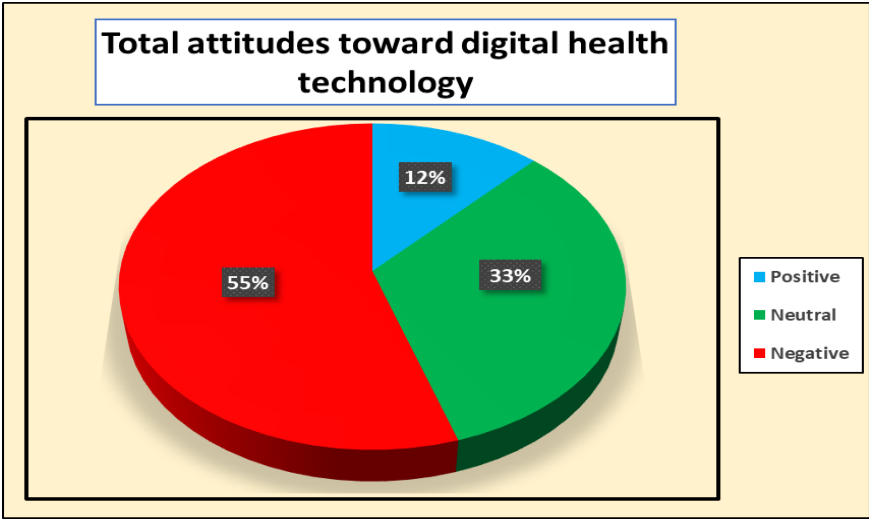


Figure (1): Percentage distribution of the studied community dwelling older adults according to their total attitude toward using mobile health technology (n=300).

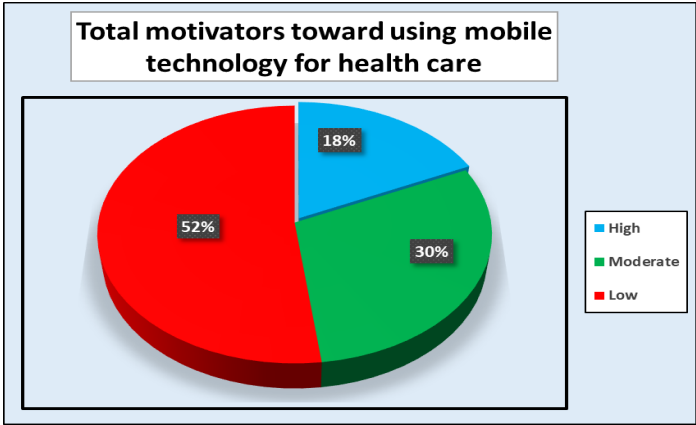


Figure (2): Percentage distribution of the studied community dwelling older adults according to their total motivators toward using mobile health technology (n=300).

Table (2): Correlation between total attitude score and total motivators score among the studied community dwelling older adults(n=300).

Variables		Total attitude score	Total motivators score
Total motivators score	r	0.928	
	p	0.000**	

r= Spearman correlation coefficient test. **highly statistically significant at p < 0.01.



Table (3): Multiple linear regression model examining the predictors of older adults' attitude toward using mobile health technology (n=300).

Items	Unstandardized Coefficients		Standardized Coefficients	t	P. value	95% Confidence interval	
	B	Std. Error	βeta			Lower	Upper
(Constant)	17.141	1.304		13.140	.000**	14.574	19.708
Education level (University education)	1.648	.201	.247	8.191	.000**	1.252	2.043
Total motivators score	.346	.042	.365	8.300	.000**	.264	.428
Total obstacles score	-.894	.079	-.403	-11.24	.000**	-1.050	-.737
Model Summary							
Model	R		R ²	Adjusted R ²		Std. Error of the Estimate	
1	.963		.928	.927		2.18514	
ANOVA							
Model	Df.		F		P. value		
Regression	3		1269.8		0.000**		

Dependent Variable: Total attitude score.

Variables entered and excluded: Age, gender, residence, marital status, occupation, living condition, income, history from chronic diseases and using mobile health technology.

Notes: B=Unstandardized Coefficients. Beta=Standardized Coefficients. t: Independent t-test. R²= Coefficient of multiple. * $p < 0.05$. ** $p < 0.01$.

Table (4): Multiple linear regression model examining the predictors of older adults' motivators toward using mobile health technology (n=300).

Items	Unstandardized Coefficients		Standardized Coefficients	t	P. value	95% Confidence interval	
	B	Std. Error	beta			Lower	Upper
(Constant)	4.541	2.043		2.223	.027*	.521	8.560
Education level (University education)	1.368	.268	.195	5.106	.000**	.841	1.896
Total attitude score	.545	.066	.518	8.300	.000**	.416	.674
Total obstacles score	-.638	.113	-.273	-5.634	.000**	-.861	-.415
Model Summary							
Model	R		R ²	Adjusted R ²		Std. Error of the Estimate	
1	.947		.898	.897		2.74165	
ANOVA							
Model	Df.		F		P. value		
Regression	3		865.59		0.000**		

Dependent Variable: Total motivators score.

Variables entered and excluded: Age, gender, residence, marital status, occupation, living condition, income, history from chronic diseases and using mobile health technology.

Notes: B=Unstandardized Coefficients. Beta=Standardized Coefficients. t: Independent t-test. R²= Coefficient of multiple. * $p < 0.05$. ** $p < 0.01$.



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