

An Empirical Examination of Factors Influencing the Intention to Use Tawakkalna App

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Abstract

In recent years, a global surge in mobile application adoption has led to the development of innovative digital solutions spanning multiple domains. The Tawakkalna application, particularly significant during periods of curfew, is one such innovation, offering manifold benefits that support users in their daily activities. This study aims to investigate the determinants influencing the continuous usage intention of Tawakkalna app users within the theoretical framework of the Technology Acceptance Model (TAM). A purposive sample of 320 users of the Tawakkalna app was employed for the study. The data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings indicate that the simplicity of the application's features emerged as a pivotal determinant of the users' intention to persistently use and endorse the app. Moreover, the research highlights that application simplicity influences user intention through two key mechanisms - Perceived Ease-to-Use and Perceived Usefulness. These insights offer valuable guidance to developers and stakeholders, underscoring the need to prioritize user-friendly design and utility in the iterative development of mobile applications to ensure sustained user engagement and recommendation.

Keywords: Tawakkalna, Mobile Applications, perceiving usefulness, perceiving ease-to-use, COVID-19, Technology acceptance model (TAM)

1. Introduction

The current century, the 21st, has changed the style of living in Saudi Arabia by using technologies, such as smartphones and phone applications, which have impacted the communication style. Smartphone applications, which are named app, has been defined as small and specialized program that can be downloaded from cell phones (Dictionary.com., n.d.). The importance of the cell phone has made users consider their devices very helpful tools to help be up to date, connect with others, and be aware of the community trends, and considered to be part of them and not a piece of device which they can share with others (Bellman, Potter, Treleaven-Hassard, Robinson, & Varan, 2011). Therefore, private corporations and government entities develop their technologies to stay in touch with the community. Much research has studied the technology of cell phones and applications and how they are important to our lives and have made our life happier. Mobile applications are considered one of the major factors that bring happiness to a person (Lin, Fang, & Hsu, 2014). Therefore, mobile applications have eased not only the lifestyle of users and brought happiness but also the style of communication and delivering messages to users. For users accepting mobile technology and using it, the applications play a critical part (Tojib & Tsarenko, 2012)

During the pandemic, many societies have suffered from the spread of the various. It can be easy to control a virus within a lab or a hospital, but it will be more difficult once it has been spread to millions and millions of people in different locations and countries. From the top level of Saudi Arabia's government to the low level, they were working, from day one of the viruses, to discover tools to help minimize the increasing numbers of infected people. A useful tool should provide the needs and wants of the decision-maker and users. Also, it has to be accessible and easy to be used. The differences in nationalities, ages, genders, languages, educations, and locations have made it even more difficult. So, they have to focus on providing the appropriate tool which can fulfill the needs of the users and decision-makers. The result of the hardworking of the collaborative teams resulted in a great concept of using technology to contact people and be in touch with them using applications since it is the century of the 4th generation, and mobile usage in Saudi society is trending and has been even

more usable due to the lockdown period of the COVID-19. Mobile device usage has greatly improved societies' lifestyles (Faiola, Papautsky, & Isola, 2018). At the end of 2019, the Saudi Data and Artificial Intelligence Authority (SDAIA) developed an app called Tawakkalna.

The Tawakkalna app is a government application implemented to support the government's efforts to prevent the society of the Kingdom of Saudi Arabia from the spread of COVID-19. At the beginning of 1st version, the app-enabled the government to control the curfew period by providing electronic permissions to government and private sector employees. Also, the application helped not only the security entities but also the health entities, private organizations, and individuals. Today, many sprints and development cycles have developed the app, which provides many services to the government and private organizations and individuals. To illustrate, Tawakkalna provides the users the ability to preview the Covid-19 Vaccine status, their digital Identities, National ID and Iqama, electronic health passport, the national address, Hajj and Umrah permissions, results of COVID-19 test, children's educational status, health condition regarding the various infection, movement permits electronically, and traffic violations.

In this research, the team has studied the importance of the technology and how it was helpful during the pandemic and the lockdown. The application provides helpful information about the users and how such an app helped us control the spread of the virus not by government enforcement but also by the people's avoidance of the infected users. The application prevented the spread of the virus from being in restaurants, shops, and supermarkets by allowing the owners to know the customer's infected and vaccine status. Also, the government empowered them to refuse to receive the infected people. The paper will study the application's added value during a critical period in not only Saudi Arabia but also the world.

2. Literature Review and Theoretical Background

A smart decision-maker will use technology to influence human lives positively. Many studies which examine the factors that influence the users' intentions depend on many theories, such as UTUAT, TRA, and TAM (Alalwan, Dwivedi, Rana, & Williams, 2016; Alalwan, Dwivedi, & Rana, 2017; Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019; Malaquias & Hwang, 2019; Shareef, Dwivedi, Kumar, & Kumar, 2017; Shaw & Sergueeva, 2019; Wang, Ou, & Chen, 2019). For instance, an empirical study examining the factors that influence the intention to use mobile payment has resulted that users were significantly intent to use m-payment due to their ease of use and usefulness. Convenience and reachability were the main determinants of the perceived ease of use of m-payment. Moreover, during the pandemic, the government worldwide initiated many rules, such as the lockdown, to prevent the spread of the virus. A study in the United States concluded that smartphone users spend more time on phone applications than web services. The study has examined the main reasons for the users' stickiness to the application and found that users intend to use applications due to the

usefulness of the presented information.

Using the technology of the internet, such as applications, has been known as one of the current century revaluations. The functions and features of an application can play a major role in the usefulness and ease of use. For example, a study has aimed to understand the factors that can positively influence the adoption of mobile educational technology. The outcomes of that study found that designers, developers, and promoters must carefully consider the content and features to fulfill the users' needs. Recently, more than introducing an application has been needed to convince users of their requirements. For example, travelers use the applications to get information about other countries, connect with others, and decide where to go (Arsal, Woosnam, Baldwin, & Backman, 2010). A study has examined hotel consumers to investigate their intentions toward their experience with mobile applications. The study's findings argued that the applications' design and features were critical for consumers to provide an exaptational informational, enjoyable, and immersive experience that affects their usage of mobile apps.

The study's conceptual model presented the proposed model of the study, which contained five hypotheses see Figure 1. We defined the relationships between the five constructs as simplicity with perceived usefulness as H1 and simplicity with perceived ease-to-use as H2. The second group of hypotheses defined the perceived usefulness with the intention to use as H3 and perceived ease-to-use with the intention to use as H4. Finally, we labeled the relation of intention to use with the intention to recommend as H5. The model suggested that the simplicity of the app's features would affect the usefulness and ease to use of the Tawakkalna application. Moreover, the drivers of the users' intention to continue using the application and recommend it in the future are the usefulness and ease of use of the applications. They are drivers of the users' intention to continue using the application and recommend it in the future.

The study used the Technology Acceptance Model (TAM), which is considered to be a well-organized model that

can be used to evaluate the users' behavior toward adapting an application (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989). The TAM is a framework that assesses the effectiveness of the external variables on system usage. The Technology Acceptance Model helps the researchers to find the users' intention to use or recommend a specific system or application in which the study can use the perceived usefulness and the perceived ease of use of the system to determine the users' intention. The model is considered the first and most influential model for researching users' IT adoption behavior (Davis et al., 1989).

2.1 Tawakkalna Application Simplicity

Application users are usually attracted to simple use applications. They feel comfortable using an application that can fulfill their needs and has simple features that are easy to learn. The study assumed that the more the features are easy, the faster their effect will be on the perceived ease of use and the perceived usefulness. The observation of the study leads to the following hypotheses:

H1: Simplicity will positively affect the perceived usefulness of the Tawakkalna application.

H2: Simplicity will positively affect the perceived ease of use of the Tawakkalna application.

2.2 Perceived Usefulness

application users use attractive to use applications where that can be useful in their daily activities. The intention of the users to use information technology is based on their perceptions of the system's usefulness (Davis et al., 1989). Much empirical evidence has proven users' intention to use useful mobile technology (Au & Kauffman, 2008; Mallat, 2007; Ondrus & Pigneur, 2006). Obviously, the more the application is useful to users, the more they look forward to using it. Therefore, the study hypothesized that perceived usefulness would positively affect the users' intention to continue using the application after the pandemic.

H3. Perceived usefulness will positively affect the intention to use the Tawakkalna application.

2.3 Perceived Ease of Use

In past studies, much evidence has been highlighted regarding the effect of perceived ease of use on intention. The ease of using an application has been studied in some research to prove that users want applications that have easy features. Since the easiness of the application, users with any level of education can easily react easily with such applications. Hence, the paper assumes that perceived ease of use should positively affect the intention to use the Tawakkalna application.

H4. Perceived ease of use will positively affect the intention to use the Tawakkalna application.

2.4 Intention to Use

The users' loyalty, satisfaction, and app recommendations are marketing benefits that can achieve due to the user's intention to continue using the mobile technology (Ellonen et al., 2009; Gruen et al., 2006; Kim et al., 2013; Samson, 2010; Seitz & Aldebasi, 2016). Intention to recommend, also called word-of-mouth (WOM), has a positive effect on expanding app usage in the communities (Xu et al., 2015; Newman et al., 2017).

Therefore, the more the users intend to continue using a mobile application, the more they recommend the community around them to use the app and get the value of the application.

H5. intention to use the Tawakkalna application will positively affect the intention to recommend the application.

2.5 Mediation Hypotheses

The paper will also examine a serial mediation model in which the relationship between the Tawakkalna simplicity and users' intention to recommend the application is mediated by perceived ease to use and usefulness and users' intention to use the app. More specifically, we argue for the simplicity of the application to increase not only the users' intention to use but also to recommend the app by influencing the ease to use and the usefulness of the application.

H6. Tawakkalna's simplicity will positively affect the intention to recommend the application by the perceived ease-to-use and intention to use.

H6. App Simplicity -> Perceived Ease-to-Use -> Intention to use -> Intention to Recommend

H7. Tawakkalna's simplicity will positively affect the intention to recommend the application by the perceived usefulness and intention to use.

H7. App Simplicity -> Perceived Usefulness -> Intention to Use -> Intention to Recommend

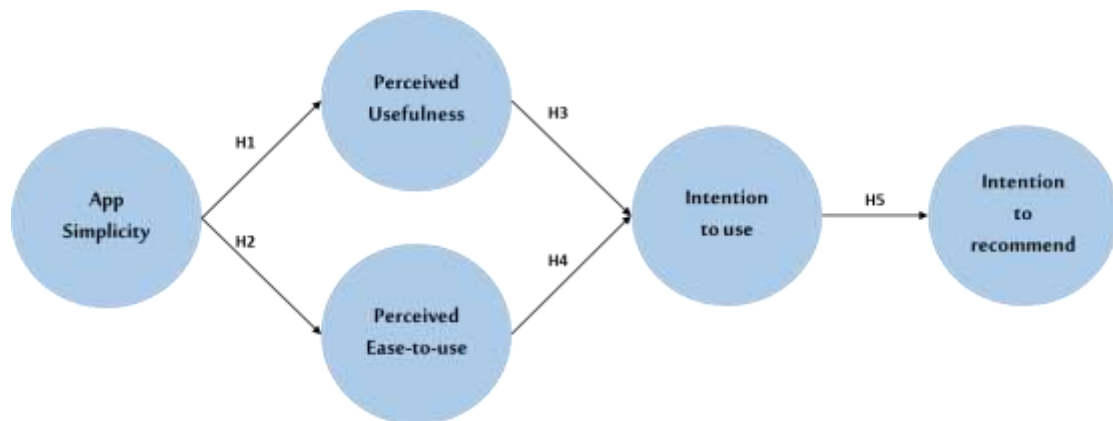


Figure 1. Hypothesized Model

3. Method

3.1 Construct Survey Items

Once the proposed model of the project was ready, the researchers started building the scales of the study based on the reviewed literature reviews. The survey items have been developed using some validated measures existing in other studies, such as intention to recommend, intention to use, perceiving usefulness, and perceiving ease-to-use. In contrast, the other items were developed by the study team, such as mobile technology Identity, platform integration, and simplicity to fit the model and make the model more reliable. Also, to ensure the survey will be filled by those who are aware of the application, the measurement items started with two main items that the participants must answer with YES. Otherwise, they cannot be able to finish the survey. The items were the following: Have you ever used the Tawakkalna app? Do you agree or disagree that Tawakkalna will be used after the pandemic? The survey items' scales were measured using a five-point Likert scale from strongly disagree to strongly agree. (See Table 2)

3.2 Collecting Data

The survey study took two weeks to collect answers from more than 481 participants. The team created the survey using Qualtrics XM and shared the survey link with the participants using social network channels. The study covered only the Saudi Arabia region since Tawakkalna is a Saudi application that the Kingdom's residents use. Moreover, the survey should measure the real beliefs of the participants so that the team builds the survey to start by asking the participants whether they agree and commit to participating in this study. Therefore, among the 481 collected questionnaires, 18 questionnaires were removed due to their objections to committing and agreeing. Also, to ensure that the participants have used the app, the online survey excluded participants from the beginning who have yet to use the Tawakkalna application. Therefore, the team removed 9 participants out of 463.

In some cases, some of the participants quickly answered the survey without reading the items carefully. The survey included an attention check item to ensure that participants are carefully answering items. As a result of that, 101 out of 454 failed to pass the attention check question. Finally, there 320 questionnaires were utilized to be used for analysis. Moreover, the average duration of filling out the survey was approximately 15 minutes.

Table 1. Sample Characteristics

Variables	Frequency (N = 320)	Percentage (%)
Gender		
Male	256	80
Female	64	20
Education		
No schooling completed	3	0.94
High school graduate	14	4.38
Some college credits	9	2.81
Associate degree	27	8.44
Bachelor's degree	172	53.75
Master's degree	65	20.31
Doctorate degree	30	9.38
Age		
15 - 24	11	
25 - 34	123	3.44
35 - 44	131	38.44
45 - 54	45	40.94
55 +	10	14.06
		3.13
Occupation		
Full-time employee	275	85.94
Part-time employee	4	1.25
Self-employed	6	1.88
Retired	10	3.13
Student	13	4.06
Unable to work	0	0.00
Unemployed	12	3.75

4. Analysis

The analysis will present the study result for descriptive statistics and the reliability and validity of the study model. A sample of 320 participants participated in the survey the study. The findings support the hypothesized relationships. The present study used a cross-sectional survey design. We ran the preliminary, including descriptive, analysis using the Statistical Package for Social Science software (SPSS; version 26). We conducted Partial Least Squares Path Modelling (PLS-PM; version 3.3.2) to test our hypotheses. The employed method is aptly suited for assessing mediated associations, owing to its inherent ability to evaluate indirect relationships through numerous alternatives while facilitating simultaneous testing of interrelations among variables. More specifically, this investigation employed the Consistent Partial Least Squares (PLSc; Ringle et al., 2015) technique, aligning it with the covariance-based Structural Equation Modelling (SEM) approach for verifying or corroborating the theory (Dijkstra & Henseler, 2015). The PLSc technique offers a corrective measure for estimates when PLS is deployed for reflective constructs. This feature facilitates the adjustment of initial estimates to account for common factor models (Dijkstra & Henseler, 2015; Kock, 2019).

4.1 Descriptive Analysis

The result of the study has presented that most users plan to continue using the application when the pandemic is over. The team asked Whether you agree or disagree that Tawakkalna will be used after the pandemic? the results were that 50.6% strongly agree, 25.6% agree, and 10.3% Neither agree nor disagree. On the other hand 5.9% disagree and 7.5% strongly disagree. The high percentage of the agreement to keep using the app can indicate the users' satisfaction with the application.

Some of Tawakkalna's features were covered in the questionnaire, such as the digital identity, which formally allows users not to carry their IDs and Driver's License with them and instead use the app. The result of the questioned question, Using the digital identity available in Tawakkalna allows me not to carry my ID & driver's license, were that 56.6% strongly agree, 29.4% agree, and 5.3% Neither agree nor disagree. On the other hand 4.7% disagree and 4.1% strongly disagree. Moreover, 86.3% of the app users strongly agree and agree that Tawakkalna helps them formally identify themselves, while only 5.9% of the study participants disagree and disagree. Most of the participant users, 85.3%, agreed that digital identity (e.g., ID & driver's licenses) makes their daily lives more effective.

The development teams of the application have made the app more attractive by developing the application by either upgrading the same features or adding new valuable features. They know the community's needs and the right channels to fulfill their needs and wants. The application also added a new feature that can present 360-degree information about not only the users' family education status but also the family health record, the user's violations, and payment channels. The combination of multi-government platforms has provided the user with most of the formal information, which they can access easily by signing in to one application. A statement was developed in the survey to measure such added value to the users; the presented information from different platforms, such as Madrasati, Sehaty, Ministry of Interior, ...etc. It saves my time signing in to every platform separately; the analysis has shown that 83.4% of the participants agreed regarding the previous statement, while only 4.7% of them disagreed, which indicates great signs that the application is providing added value to the users and the development teams are of the users pain how it can be cured.

Finally, the respondent's profile showed that Full-time employees with Bachelor's degrees and Master's degrees were most participants, and most were between 25 to 44 years old.

4.2 Reliability and Validity Analysis

The study structural Equation Modeling (SEM) was applied using Qualtrics XM software. The purpose of analyzing the model is to evaluate the proposed model's reliability and validity, adjust the appropriate model, and determine whether the research model is associated with the model constructs. The team started to assess the measurement with the model constructs and the measured variables. Next, to increase the accuracy of the data, many tests and modifications have occurred on the relationships of the proposed hypotheses with the model structure. All the previous processes of testing and modifications have resulted in a final developed model that the study relied on for its analysis.

4.3 Measures

In this investigation, all measurement instruments were extracted from existing literature, boasting high levels of validity and Cronbach's α scores. Participant responses were captured using a five-point Likert-type scale, which was grounded in anchors of (1) strong disagreement to (5) strong agreement. Tables 2 and 3 encapsulate a summary of constructs along with their respective item loadings. The scales' reliability was ascertained via Cronbach's Alpha (α) estimations. To evaluate the scales' convergent validity, Composite Reliability (CR) and Average Variance Extracted (AVE) were utilized. Discriminate validity of the scales was gauged using the Fornell-Larcker criterion (1981) and Heterotrait-Monotrait (HTMT) ratios. The alignment of items with their pertinent constructs/factors was determined by calculating factor loadings. As a standard prerequisite for item retention, each scale was required to have a minimum reliability of .70 (Nunnally, 1978) and an item factor loading exceeding .50 (Hair et al., 2018). App Simplicity was self-created by the team and had three items. Perceiving ease-to-use was assessed using Davis et al. (1989) 6-item scale. Perceiving usefulness was assessed using Davis et al. (1989) 6-item scale. Intention to use was measured using Davis et al. (1989) 3-item scales, and finally, the intention to recommend was assessed using Blanche et al. (2010) 3-item scales, respectively see Table 2. Age, gender (1 = female, 0 = male), Occupation, and education were included in the model as control variables. Education was measured using a seven-point scale: No schooling completed, High school graduate, Some college credit, Associate degree, Bachelor's degree, Master's degree, Doctorate degree. Higher scores indicated a higher level of education. see Table1.

Table 2. Measurement Model Results

Items	SL	SE	T-Value	VIF
App Simplicity				
The simplicity of Tawakkalna's functions makes it an enjoyable app.	0.90	0.96	26.47	2.24
The app's infographics creatively present the information.	0.88	0.97	32.16	2.32
The app presents information in an easy-to-understand style	0.87	0.83	35.62	1.99
Perceived Ease-to-Use				
I found it easy to get Tawakkalna to do what I want it to do.	0.80	0.85	14.86	2.01
Learning to use Tawakkalna was easy for me.	0.90	0.68	27.86	4.50
My interaction with Tawakkalna is clear and understandable.	0.91	0.75	18.47	3.77
I find Tawakkalna easy to use.	0.91	0.71	25.40	4.53

Learning to use Tawakkalna is easy for me.	0.92	0.69	28.40	5.86
It would be easy for me to become skillful at using Tawakkalna.	0.87	0.74	26.74	2.98
Perceived Usefulness				
Using Tawakkalna enables me to accomplish more tasks quickly	0.87	1.14	29.32	3.13
Using Tawakkalna improves my daily life performance.	0.90	1.18	43.03	4.70
Using Tawakkalna increases my daily life productivity.	0.92	1.15	39.67	7.46
Using Tawakkalna enhances my daily life effectiveness.	0.91	1.15	40.24	6.98
Using Tawakkalna would make my daily life easier.	0.90	1.17	38.32	3.98
I find Tawakkalna very useful.	0.82	1.01	24.22	2.42
Intend to Use				
I intend to keep using Tawakkalna	0.97	1.12	93.99	8.53
I will always try to use Tawakkalna	0.98	1.14	97.47	9.32
I plan to continue using Tawakkalna	0.98	1.140	90.32	10.05
Intend to Recommend				
If someone asked me about Tawakkalna, I would give a positive opinion	0.92	0.94	32.16	3.21
If I had the opportunity, I would highlight the advantages of Tawakkalna	0.93	0.95	34.32	3.56
I would recommend Tawakkalna	0.95	0.99	25.64	4.25

Notes: SL = Standard Loadings; SE = Standard Error; VIF = Variance Inflation Factor

4.4 Common Method Bias

As all measures were self-reported, the impact of Common Method Bias (CMB) should be analyzed. Established recommendations were followed to ensure that CMB is eliminated or minimized (Podsakoff et al., 2003). According to Kock (2015), the occurrence of a Variance Inflation Factor (VIF) greater than 3.3 is proposed as an indication of pathological collinearity and also as an indication that CMB may contaminate the model. The results of the current study show that the VIF scores ranged from 1.22 to 3.64; hence, CMB was not considered to be significantly influential (Kock, 2015).

Furthermore, Harman's single factor test (Harman, 1967) was conducted to further check for the existence of CMB. For this test, a substantial amount of CMB is present if a single factor emerges from the factor analysis or if one general factor accounts for most of the covariance among the variables (Podsakoff et al., 2012).

4.5 Statistical Procedures

The current investigation adopted a cross-sectional survey design. Preliminary and descriptive analyses were executed using the Statistical Package for the Social Sciences software (SPSS; version 26). In order to evaluate our proposed hypotheses, we utilized the Partial Least Squares Path Modeling approach (PLS-PM; version 3.3.2). The method applied in this research is fitting for examining mediated relationships, credited to its ability to evaluate indirect relations across a range of options, while concurrently enabling researchers to assess inter-variable relationships. More specifically, the Consistent Partial Least Squares (PLSc; Ringle et al., 2015) technique was utilized in this study, emulating the covariance-based Structural Equation Modelling (SEM) method for verifying or substantiating the theory (Dijkstra & Henseler, 2015). PLSc allows corrections for estimates when PLS is implemented on reflective constructs, enabling adjustments of the original estimates to accommodate common factor models (Dijkstra & Henseler, 2015; Kock, 2019). Given the usage of PLSc, the necessary sample size should be substantial, no less than 100 cases (Kock & Hadaya, 2018; Latan & Ghazali, 2015; Latan & Noonan, 2017). The PLSc analysis employed 300 iterations (Hair et al., 2017). The significance of the path analysis, t-scores, p-values, and corresponding 97.5% bias-correlated and accelerated (BCa) bootstrap confidence intervals were acquired by implementing a bootstrapping procedure (with a subsample of 500; using no sign changes) and 2.5% significance level.

PLS-PM has become a popular tool for analyzing complex relationships (Sarstedt & Cheah, 2019). In most management studies, PLSc has been used as a tool for analysis (Latan et al., 2018; Lisi, 2015; Munir et al., 2019). Unlike other multivariate techniques, PLS-PM is non-parametric and does not depend on the assumption of

normality (distribution-free). Given the above, considerations such as multicollinearity and goodness of fit indices for local model evaluation were factored into this study. In essence, the data analysis process for hypothesis testing in this study was carried out in four stages. Initially, the measurement model was evaluated to ascertain the reliability and validity of each construct (Bandalos, 2018; Furr, 2017). Subsequently, the structural model's congruence with the observed data was assessed (Aguinis et al., 2018; Hair et al., 2018). In the third stage, the direct relationships between each predictor variable and its outcome were scrutinized to establish their correlation's nature (Pierce & Aguinis, 2013). Lastly, the indirect relationships of the proposed predictor variables and their outcomes were examined in the presence of mediators (Hayes, 2013).

5. Results

Table 3 shows the study variables' means, standard deviations, correlations, reliability, and validity estimates. App Simplicity was found to be positively correlated with perceived usefulness, perceived Ease-to-Use, Intend to Use, and Intend to Recommend ($r = 0.74, 0.69, 0.80,$ and 0.78 , respectively, $p < 0.01$), providing initial support for hypotheses H1, H2, and H5. Furthermore, perceived usefulness was also positively correlated with intent to use and intent to recommend ($r = 0.80, 0.59$, and 0.75 , respectively, $p < 0.01$), providing initial support for hypotheses H3 and H5. Moreover, perceived ease-to-use was also positively correlated with intention to use and intention to recommend ($r = 0.57$ and 0.77 , respectively, $p < 0.01$), providing initial support for hypotheses H2 and H5. Lastly, intend-to-use was positively correlated with the approach role Intend to Recommend ($r = 0.58$, respectively, $p < 0.01$); see Table 4.

5.1 Measurement Model

In this investigation, PLS-based SEM (Sarstedt & Cheah, 2019) was utilized for data analysis, given its efficacy and suitability for hypothesis testing (Hair et al., 2017). This methodology provides a holistic understanding of the study by concurrently integrating the measurement and structural models (Hair et al., 2017). We scrutinized the measurement model by assessing item loadings in the Confirmatory Factor Analysis (CFA), and examining reliability and validity reports. As Table 2 depicts, all items showed high loadings on their associated constructs, signifying a high degree of convergence on their respective constructs (Hair et al., 2018). Table 3 demonstrates the reliability of the measured constructs (Cronbach's Alpha and CR) ranging from 0.86 to 0.97, exceeding the minimum acceptable threshold (Hair et al., 2018). In terms of convergent validity, findings reveal that the AVEs of the constructs varied from 0.67 to 0.93, surpassing the minimum acceptable limit of 0.50 for empowering leadership and work engagement. Finally, with regard to discriminant validity, the results imply that the square root of the constructs' AVEs exceeded their correlations with other variables, thereby establishing discriminant validity among the constructs (Fornell & Larcker, 1981) as displayed in table 4. Further, the HTMT ratios were positioned above the diagonal in Table 3.3 and fell within the acceptable range (Hair et al., 2018). Hence, both convergent and discriminant validity received empirical support.

5.2 Structural Model

The structural model was tested by investigating the β , p-value, R^2 , f^2 , and Q^2 estimates. Whereas β measures the strength of the relationship between the observed variables, R^2 explains the overall predictability of the structural model (Hair et al., 2018). Additionally, the p-value signifies the significance level to determine whether a hypothesis is supported. In addition to looking at changes in R^2 , we considered f^2 , which represents the meaningfulness of the effect size of each predictor. Moreover, in SmartPLS, the blindfolding procedure helps to generate values of Q^2 , which applies a sample reuse technique that omits part of the data matrix and uses the model estimates to predict the omitted part. Studies recommend values of β above 0.20 (Hair et al., 2018) and R^2 and f^2 values above .13 and .15, respectively (Cohen, 1977; Hair et al., 2018). It is also recommended to have a value of Q^2 higher than zero to indicate predictive relevance.

Figures 2 & 3, along with Tables 4 through 8, exhibit the β , p-values, R^2 , f^2 , and Q^2 values for the proposed structural model. Both the β and R^2 values surpassed the minimum threshold limit, with the p-values indicating the significance of all model paths. In terms of f^2 , all paths manifested moderate relationships, with the exception of the perceived Ease-to-Use to Intention to Use path ($f^2 = .059$), which, while lower, still displayed sufficient strength to explain a portion of the variance. Table 6 presents the Q^2 values of the dependent constructs: $Q^2(\text{Intention to Recommend}) = .491$, $Q^2(\text{Intention to Use}) = .544$, $Q^2(\text{Perceived Ease-to-Use}) = .402$, and $Q^2(\text{Perceived Usefulness}) = .381$. All Q^2 values exceeded zero, reinforcing the predictive relevance of the conceptual model (Hair et al., 2012). Overall, considering the R^2 , f^2 , and Q^2 estimates, the proposed model demonstrated a robust explanatory power. As for the model's goodness of fit, we computed the Standardized Root Mean Square Residual (SRMR), yielding a value of .07, which signifies negligible discrepancy between the implied and observed models (Hair et al., 2018).

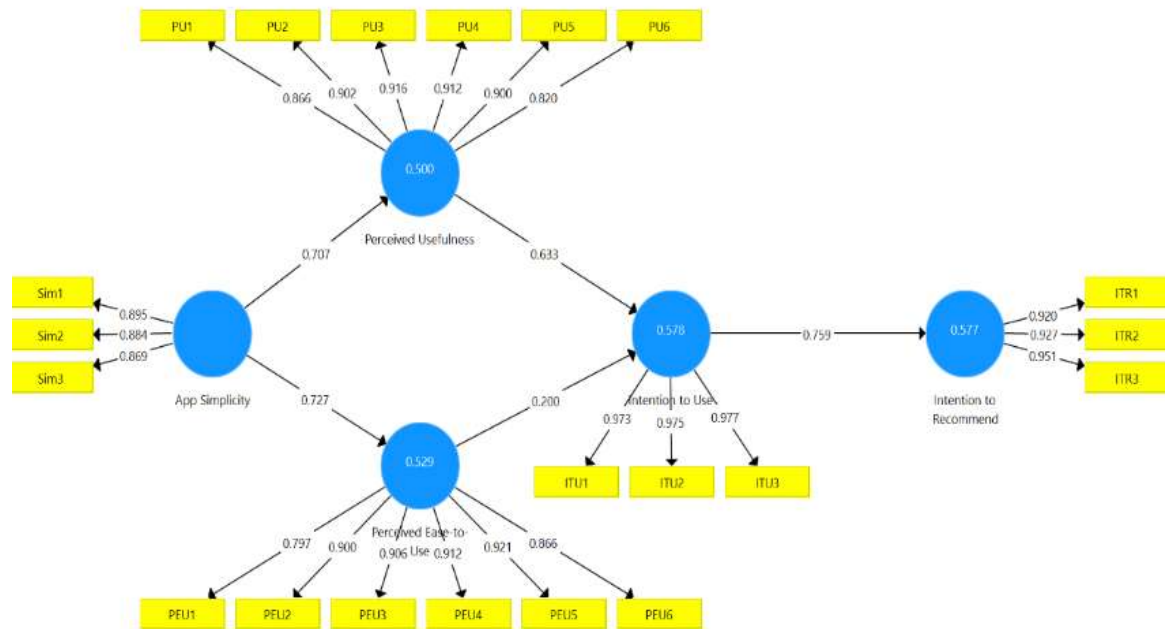


Figure 2. Results for the PLS Algorithm

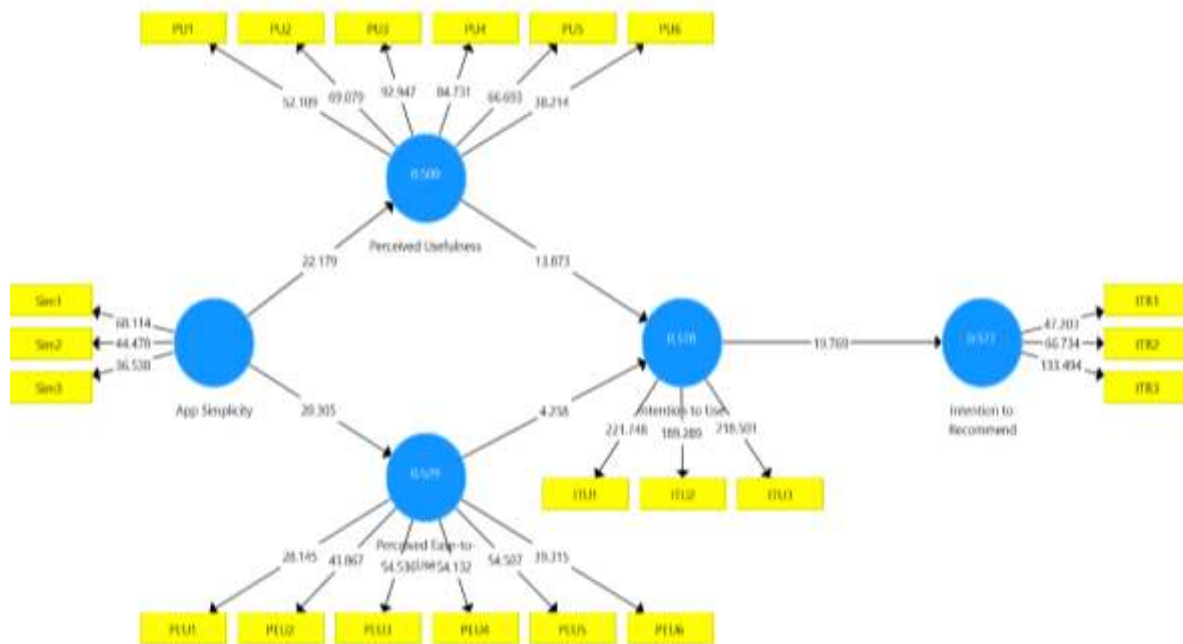


Figure 3. Results for Bootstrapping

Table 3. Means, Standard Deviations, Correlations, Reliabilities, and Validity Estimates

Variables	M	SD	CA	CR	AVE	1	2	3	4	5
App Simplicity	4.01	0.92	.86	.86	.67	0.82	0.74	0.69	0.80	0.78
perceived usefulness	3.47	1.13	.95	.95	.73	0.74	0.90	0.80	0.59	0.75
perceived Ease-to-Use	3.88	0.73	.94	.94	.73	0.69	0.80	0.96	0.57	0.77
Intend to Use	3.88	1.14	.97	.97	.93	0.80	0.59	0.57	0.86	0.58
Intend to Recommend	4.23	0.96	.93	.93	.81	0.78	0.75	0.77	0.58	0.86

Boldfaced diagonal elements are the discriminant validity by the Fornell-Larcker criterion. Below the diagonal elements are the correlations between the constructs. N = 320. M= Mean; SD = Standard Deviation; CA = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted. Boldfaced diagonal elements are the square roots of the AVE statistics for discriminant validity by the Fornell-Larcker criterion.

Below the diagonal elements are the correlations between the constructs. Above the diagonal elements are the HTMT ratios.

Table 4. *R* Square

Variables	R Square	R Square Adjusted
Intention to Recommend	0.634	0.633
Intention to Use	0.618	0.616
perceived Ease-to-Use	0.648	0.647
Perceived Usefulness	0.611	0.610

Table 5. *F* Square

Variables	Intention to Recommend	Intention to use	Perceived Ease-to-Use	Perceived Usefulness
Intention to Recommend			1.841	1.569
Intention to Use	1.735			
perceived Ease-to-Use		0.059		
Perceived Usefulness		0.773		

Table 6. *Q* Square

Variables	SSO	SSE	Q ² (=1-SSE/SSO)
App Simplicity	960	960	
Intention to Recommend	960	488.494	0.491
Intention to Use	960	438.083	0.544
Perceived Ease-to-Use	1920	1149.017	0.402
Perceived Usefulness	1920	1188.067	0.381

Table 7. Estimates of the Direct Relationships

Path Relations	β	SE	T-Value	P-Value
Direct Relationships				
SIM \rightarrow PEU	.73	.034	23.599	.00
SIM \rightarrow PU	.71	.032	24.254	.00
ITU \rightarrow ITR	.76	.037	21.256	.00
PEU \rightarrow ITU	.2	.051	3.638	.00
PU \rightarrow ITU	.633	.051	13.121	.00

Table 8. Estimates of the Specific Indirect Relationships

Path Relations	β	SE	T-Value	P-Value
App Simplicity \rightarrow Perceived Usefulness \rightarrow Intention to use	0.520	0.047	11.092	0.00
App Simplicity \rightarrow Perceived Ease-to-Use \rightarrow Intention to use	0.148	0.042	3.516	0.00
Perceived usefulness \rightarrow Intention to use \rightarrow Intention to Recommend	0.531	0.053	9.983	0.00
Perceived Ease-to-Use \rightarrow Intention to Use \rightarrow Intention to Recommend	0.147	0.041	3.609	0.00
App Simplicity \rightarrow Perceived Ease-to-Use \rightarrow Intention to use \rightarrow Intention to Recommend	0.118	0.034	3.477	0.00
App Simplicity \rightarrow Perceived Usefulness \rightarrow Intention to Use \rightarrow Intention to Recommend	0.415	0.048	8.581	0.00

Note: SIM = App Simplicity; PEU = Perceived Ease-to-Use; PU = Perceived Usefulness; ITU = Intention to Use; ITR = Intention to Recommend; β = Standardized Path Coefficient; SE = Standard Error.

5.3 Hypothesis Testing

Table 7 delineates the direct relationships between exogenous and endogenous variables. The findings illustrate that the direct relationship between App Simplicity and Perceived Ease-to-Use is significant ($\beta = .73$, $p < .01$). Similarly, the direct relationships between App Simplicity and Perceived Usefulness, Perceived Usefulness and Intention to Use, Perceived Ease-to-Use and Intention to Use, and Intention to Use and Intention to Recommend were all substantial and significant at $p < .01$. To validate hypotheses H1-H5, we examined the coefficient parameters and the related 97.5% bias-corrected confidence intervals, following the methodology proposed by

Blanco-Oliver, Veronesi, and Kirkpatrick (2016). Table 8 showcases the Specific Indirect Effects of the suggested model. Hypothesis H6 (App Simplicity \rightarrow Perceived Ease-to-Use \rightarrow Intention to Use \rightarrow Intention to Recommend) posits that the simplicity of Tawakkalna positively influences the intention to recommend the application, as the indirect relationship is significant ($\beta = .118$, $p < .01$), thereby supporting hypotheses H1, H3, and H5. Similarly, Hypothesis H7 (App Simplicity \rightarrow Perceived Usefulness \rightarrow Intention to Use \rightarrow Intention to Recommend) contends that the simplicity of Tawakkalna contributes positively to the intention to recommend the application, due to the significant indirect relationship ($\beta = .415$, $p < .01$), further affirming hypotheses H2, H4, and H5.

6. Discussion

The team has tested the indirect relationship between the simplicity of the applications and the intention of the user to recommend the Tawakkalna app. In this study, we surveyed the users' experience of the Tawakkalna app during the pandemic of COVID-19 and their intention to continue using the app and recommend it to others after the pandemic. The study's findings indicate that the application's simplicity was a major factor in people's recommendations of the application. Also, the app's usefulness helped users get benefits during the pandemic. We also found support for the indirect relationship of app simplicity on Intention to Recommend through Perceived Ease-to-Use, Perceived Usefulness, and Intention to Use, shedding light on the ability of simplicity to influence the users' thoughts about the value of Tawakkalna.

The study outcomes show that the easier app features are, the more useful the application is to them and the confidence to recommend the app due to their user experience. In addition, the study's results indicated that the simplicity of the application features had attracted users to continue using the application. Also, both perceived ease of use and perceived usefulness significantly affect not only their intention to use but also their intention to recommend the applications to others. Also, the users' intuition to continue using the application can be increased when the future enhancement considers the application's usefulness by developing easy features and being away from the complex services and features.

6.1 Theoretical and Practical Contributions

This manuscript provides several theoretical contributions, illuminating potential mechanisms regarding the dynamic interplay between the features of applications and users' intentions towards these apps. Furthermore, it explores how these interactions can influence users to endorse the application, thereby highlighting the significance of word-of-mouth (WOM) promotion. First, this paper contributes to developing Tawakkalna applications, which are new in their communication style between the governments and the community. The study is considered a new study that evaluates the users' experience and how the application added value to their daily life during the pandemic. Second, the paper will extend the knowledge about the application and the added value which the app has provided to the community in a critical time when many governments and societies have aggressively failed in their fights to prevent the virus from attacking the country. Third, the developer team of the app has positively contributed to the application's success by improving its features by making the app more than an app for health status. They provide all personal and governmental documents such as ID, Driver's License, Family Members Card, and vehicle Licenses to be formally used from the app in formal situations. More than 80% of the users agreed and strongly agreed that the application helped them formally identify themselves. It also eases the way they carry all formal documents in their pockets. As per the survey, 86% of the participants agreed and strongly agreed that the digital identity in Tawakkalna allows them not to carry their ID & driver's license.

6.2 Limitations and Recommendations for Future Research

The study findings can help the application's owner to invest more to improve the application and deliver the users' expectations. However, as with many studies, our study has faced some limitations which can guide the researchers for future studies. First, considering the source of the data and the limitation in time, the study performed empirical analysis on only Saudi applications. Therefore, future studies can research other countries' applications and compare the result of the study to the finding with Tawakkalna. Second, the study surveyed the users' experience at a specific period of time, which was app usage during the pandemic, therefore; future research can more research when COVID-19 ends by examining the usage continuity. Specifically, the intention to recommend the app was one of the study outcomes; future researchers can extend their research to examine the results of the users' recommendations to others in continuing the app usage. Finally, future studies can examine the usage of the application more deeply to investigate whether the users are accepting the usage of the technology, the health status presented in the app, or the valuable services that the Tawakkalna application provides the user.

7. Conclusion

To conclude, the study conducted the users' experience with the Tawakkalna application and the added value the app provides during the pandemic. It has provided users with many benefits that have helped them control their movement to prevent themselves and their families from being infected due to COVID-19. The team has used technology to spread the survey to collect the users' expectations and experiences about the added value of the application due to the usefulness and ease of use of the Tawakkalna application. The result of the study explained that the driver which benefits the Tawakkalna to be continually used and recommended is the simplicity of the app features.

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