

Behavioral intention & use behavior of citizens in Iligan city towards the staysafe.ph application during the covid 19 pandemic

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Abstract. The Covid-19 pandemic has encouraged the use of digital solutions such as contact tracing applications to manage the spread of the virus infection. The use of Staysafe.ph app in particular is central to the management of public health emergencies in the country, however, it is important to understand the needs and tolerances of different users to address factors that may hinder the adoption of such strategy. Prior research in contact-tracing apps focuses solely on measuring people's intentions to use the app. However, the effectiveness of contact-tracing apps is dependent on a significant percentage of the population installing and using the app. Hence, to investigate the intention to use and usage behavior of citizens towards the Staysafe.ph application during the pandemic, the UTAUT model is used, expanding it with three constructs: privacy concern and self-efficacy as direct determinants for behavioral intention; and fear of Covid-19 as a moderator. A survey experiment (N = 400) in Iligan City is used, in which a web-based version of the survey questionnaire was distributed through social networks. The measurement and structure model were appraised using structural equation modelling (SEM). The result shows that effort expectancy, social influence, facilitating conditions, and self-efficacy played an important role in behavioral intention and usage of the app, except for performance expectancy and privacy concerns. Moreover, respondents showing behavioral intention to use the application are more likely to use the app. The multiple regression analysis showed that fear of Covid-19 and age as moderating factors do not have a significant impact on behavioral intention and use behavior. These findings were interpreted in the light of current conceptualizations in the area of the study and their implications for the future were pointed out. You should leave 8 mm of space above the abstract and 10 mm after the abstract. The heading Abstract should be typed in bold 9-point Arial. The body of the abstract should be typed in normal 9-point Times in a single paragraph, immediately following the heading. The text should be set to 1 line spacing. The abstract should be centred across the page, indented 17 mm from the left and right page margins and justified. It should not normally exceed 200 words.

Keywords: contact tracing application, Covid-19 pandemic, staysafe.ph, UTAUT

1 Introduction

COVID-19 had been labeled a public health emergency of international concern by the World Health Organization (WHO) by the end of January 2020 (World Health Organization [WHO], (2020). It is a highly contagious disease that is caused by the coronavirus SARS-CoV-2. COVID-19 spreads more easily among people, resulting in a higher number of cases [31].

With the global spread of the COVID-19 pandemic, the use of e-government has been intensified (Organisation for Economic Co-operation and Development [OECD], 2021). Public health authorities and governments provided health solutions, such as those mobile health solutions developed in China, Singapore, and South Korea, to control the transmission of illnesses, promote quarantine and social isolation, and improve virus monitoring and communication [31], [28], [41]. Applications for COVID-19 contact tracing monitor and track infection chains, offer immediate assistance and information in the event of an infection, or contact with an

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infected person, and support people in quarantine [36], [40], [23]. In the Philippines, the Inter-Agency Task Force on Emerging Infectious Diseases (IATF) designated StaySafe.PH as the official contact tracing application in Resolution No. 45 issued on June 10, 2020, to aid in the management of COVID-19 cases by reminding people to maintain physical distance, as well as recording and monitoring COVID-19 symptoms [8]. The Stay Safe app is being utilized by 15 million individuals and 700 local government units (LGUs) around the country.

Amidst extensive efforts to control the spread of infection, these developments face several ethical and practical problems. The public's acceptance and readiness to adopt and use contact tracing applications have been slow [26], [18], [28]. Security concerns, as well as the absence of scanning capabilities in some mobile devices, have contributed to this opposition. Systems based on scanning QR codes, for example, are vulnerable to erroneous and unreliable data. Moreover, consumers are becoming increasingly concerned about who collects their data and how it will be used [26]. Using tracing applications also imply consent to share health-related data with governmental organizations, consequently creating issues about data privacy, a potential breach, and exploitation of health information for purposes other than COVID-19 [18]. Furthermore, ethical concerns about the digital divide resurface in this setting which refers to the availability and capabilities to use digital technologies as well as habits of usage. Elderly persons, for example, report using smartphones less frequently and feeling less competent in their use. This is especially difficult when it comes to contact tracing applications, because older persons are at a higher risk of getting worse COVID infections [26], [18], [28].

The topic of whether the public uses applications as intended is relevant given the technical and ethical restrictions on tracing. While some studies reported higher intention to use the app [36], [31], others reported that contact tracing applications turn out to be a failure, as some research finds a low intention to use such applications [18], [40], [23], [19]. In addition, some studies found that current use or actual usage is generally lower than usage intentions [28], [10]. This suggests that many individuals may be optimistic or show a wish to use a contact tracing application, however, downloading, installing, or using it, however, is not something they would do.

This study investigates contact tracking app use in the general community by drawing on the literature on the acceptance of mobile technology and the implementation of e-government. So far, a common limitation found among studies gathered is that at the time of the research, many governments have not yet released their respective contact tracing applications [36], [18], [28]. Therefore, the actual usage behavior could not be considered. While most of the studies assessed the participants' perception or intention [36], [18], [28], it is desirable to extend the study by evaluating the actual usage to get a better understanding of the use behavior of Staysafe.ph application in mitigating the spread of COVID-19. Further, no prior study in the Philippines has been made which focus on the user intention and usage behavior towards contact tracing application.

This study will fill those gaps by investigating the intention to use as well as the actual usage of Staysafe.ph application among the citizens, particularly in Iligan City during the COVID 19 pandemic. Specifically, the study will answer the following questions: (1) To what extent do performance expectancy (PE), effort expectancy (EE), social influence (SI), privacy concern (PC), and self-efficacy (SE) affect the behavioral intention of citizens in Iligan City towards StaySafe.ph application during the pandemic (2) To what extent does facilitating conditions (FC) affect the use behavior of citizens in Iligan City towards StaySafe.ph application during the pandemic (3) To what extent do the following moderators influence specific constructs such as: Age to self-efficacy (SE) and behavioral intention; Fear of Covid-19 (FoC) to performance expectancy (PE), effort expectancy (EE), social influence (SI), privacy concern (PC), self-efficacy (SE), and behavioral intention; Fear of Covid-19 (FoC) to facilitating condition (FC) and use behavior (UB) (4) To what extent does behavioral intention (BI) affect the use behavior (UB) of citizens in Iligan City towards StaySafe.ph application during the pandemic.

[33] as cited by [27], [5] considered that among the frequently employed technology acceptance models for gauging the uptake and utilization of new technologies include the UTAUT model. These are performance expectancy (PE), social influence (SI), effort expectancy (EE), and facilitating conditions (FC). In addition, gender, age, experience, and voluntariness of use are four intermediate individual variation variables in UTAUT that predict the link between primary factors and behavioral intention and use behavior.

While UTAUT is a unified model, evidence suggests that unified models can be further adjusted by adding important features that are appropriate for a certain application scenario [34], [18], [36], [6], [21]. After a review of technology adoption literature, it became clear that even though UTAUT had captured several crucial precursors to contact tracing application acceptance, some crucial adoption determinants in the context of the Covid-19 outbreak had been missed. Hence, the study included three (3) additional variables namely, privacy concerns, self-efficacy, and fear of Covid-19 which are found common in technology-focused research in the context of the Covid-19 pandemic [36], [18], [21], [31].

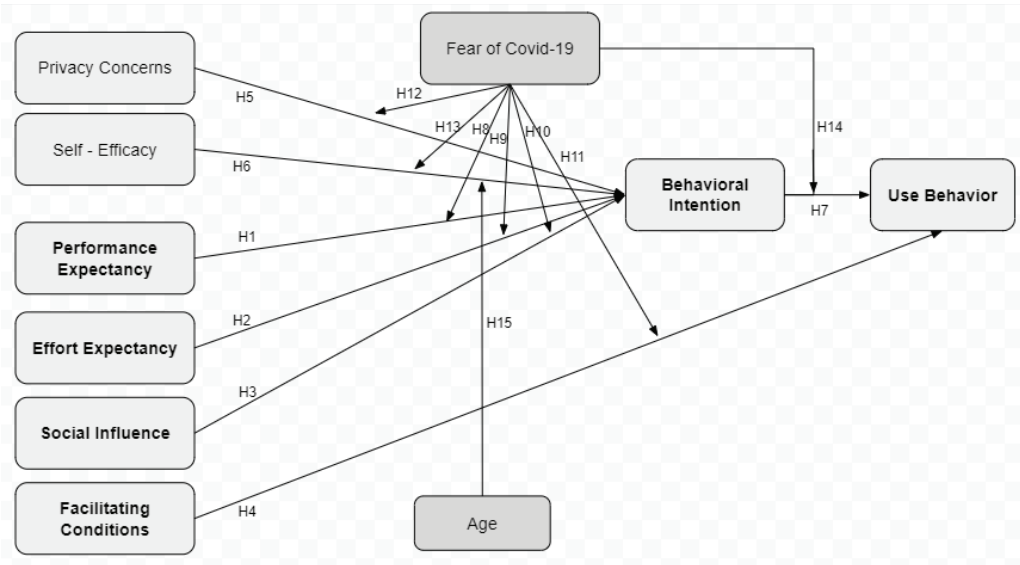


Figure 1. The research framework of UTAUT (unified theory of technology acceptance and use) to predict behavioral intention and use behavior of citizens towards the Staysafe.ph application during the COVID 19 pandemic. The relevant variables that are not included in the original hypothesis are not in bold.

According to [36], privacy concerns refer to the individual user's view or subjective assessment that he or she would experience some data protection issues associated to the adoption of contact-tracing applications. This makes it a key factor in determining whether users will accept a mobile application. It contributes to the anticipation of adverse outcomes, which has a detrimental impact on the intention to use [31]. There are worries about data breaches, data misuse, hackers, and data sharing with third parties [40]. According to [18], self-efficacy is the capacity of the user to utilize technology independently, particularly a computer or other technical gadget used to access an e-government service, such as a tablet or smartphone. Additionally, familiarity with other health apps and increased smartphone usage in general are linked to good intentions to download contact tracing apps [34]. Finally, people's fear of Covid-19 refers to their perception of the likelihood of catching the coronavirus (COVID-19) and their fear of getting sick [6]. It demonstrates how people are concerned about the effects of COVID-19 crisis. The more concerned people are about the COVID-19 crisis's effects, the more likely it is that they will download the app [36]. The desire to use contact tracing software is significantly influenced by the worry and feeling of vulnerability to COVID-19 infection, in addition to the perception of a high likelihood of infection [31].

2 Review of Related Literature

This paper examined various literature on contact tracing application use among the general population using data from the literature on mobile technology acceptance, including studies related to e-government adoption. A major restriction noted among studies so far is that several countries have yet to release their own contact tracing applications at the time authors conducted their research. As a result, the actual usage behavior could not be considered. Further, some studies found that current use or actual usage is generally lower than usage intentions. By utilizing the Unified Theory of Technology Acceptance and Use of Technology (UTAUT), proposed by Venkatesh, Morris, Davis, and Davis (2003), this paper aimed to investigate not only the citizens' perceptions or intentions, but as well as the actual usage of Staysafe.ph application during the pandemic.

This section reviews the literature and related studies utilizing the Unified Theory of Technology Acceptance and Use of Technology (UTAUT), in line with the area of the intention to use and usage behavior of citizens in Iligan City towards the StaySafe.Ph applications during the pandemic. UTAUT is a model of individual acceptance with its main constructs namely; performance expectancy, effort expectancy, social influence, and facilitating conditions. By integrating four moderators to account for dynamic effects, including gender, age, voluntariness, and experience, the theory advanced individual acceptance research by bringing together the

theoretical viewpoints prevalent in the literature [33]. This study included three (3) additional variables namely, privacy concerns, self-efficacy, and fear of Covid-19 which are found common in technology-focused research in the context of the Covid-19 pandemic [36], [18], [31].

2.1 Performance expectancy (PE)

The UTAUT's key conclusions are that people are more inclined to adopt new technology if they anticipate using it [33]. Moreover, respondents who have positive expectations concerning the app's performance in detecting positive cases and in contributing to the prevention of the virus's spread will be more inclined to install the app [36], [28]. Thus, the following hypothesis is formulated:

H1: *Performance expectancy positively affects people's behavioral intention to use StaySafe.ph application during the pandemic.*

2.2 Effort expectancy (EE)

This is the degree of ease associated with the use of the system [33]. UTAUT suggests that the adoption of new technology is more likely if it's easy to access and use [36], [28]. Moreover, users will assume that a system is simple if they find it straightforward to use, which will increase the acceptability and usage of certain systems and applications. This is because people who find a technology to be simple to use are more likely to think the system is straightforward and to be content with it [24]. Thus, the author formulates the following hypothesis:

H2: *Effort expectancy positively affects people's behavioral intention to use StaySafe.ph application during the pandemic.*

2.3 Social influence (SI)

Social influence is the degree to which an individual perceives that important others believe he or she should use the new system [33]. One of the main implications of the UTAUT is that the adoption of new technology is more likely if it is recommended and supported by others [28]. For instance, sharing information about friends who have downloaded the app or communicating their use of it may increase people's perceptions of social pressure to do so. Social influence has been found to be significant in the beginning of an individual's experience with a new technology, but its significance diminishes over time and eventually disappears once the usage of the technology is sustained because an individual's own experience provides a more useful foundation for their continued use of a technology [36]. Thus, authors formulate the following hypothesis:

H3: *Social influence positively affects people's behavioral intention to use StaySafe.ph application during the pandemic.*

2.4 Facilitating conditions (FC)

This is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system [33]. Individuals' adoption of the app may be affected by the availability of several factors that promote technology use, such as information and assistance [36]. Additionally, unequal access to cellphones may exacerbate health disparities and worsen already-existing imbalances [40]. Not every home in Europe has access to mobile internet or cellphones. The most recent data available from 2020 shows that 21% of young individuals ages 18 and up do not have a smartphone, compared to 30% of UK seniors aged 55 and up who do not possess or have access to one. Contact tracking apps and associated technologies are not readily available to a large portion of the public because of the digital gap and inequality [2]. Thus, authors formulate the following hypothesis:

H4: *Facilitating conditions positively affect people's use behavior towards StaySafe.ph application during the pandemic.*

2.5 Privacy concerns (PC)

Privacy concerns refers to the individual user's view or subjective assessment that he or she may experience some data-protection difficulties because of the adoption of contact-tracing programs [36]. This is a key factor to consider when assessing how well a mobile application is received by users. It increases the likelihood of anticipating bad outcomes, which has a detrimental impact on the intention to use [31]. Hackers, data breaches, and the possibility of data sharing with third parties are among the security-related fears. The ethical concern of privacy has been noted as a potential roadblock to adoption intentions. Privacy issues have reportedly served as a substantial roadblock to the adoption of contact tracing programs by citizens in Australia and Europe [40]. Discussions have focused on issues such how user data would be anonymized, where it will be stored, who will have access to it, and how it will be shared, used, and destroyed once the epidemic is over [2]. Thus, authors formulate the following hypothesis:

H5: *Privacy concerns positively affect people's behavioral intention to use StaySafe.ph application during the pandemic.*

2.6 Self-efficacy (SE)

This refers to the ability of the user to use technology by himself [18]. Also termed ‘computer self-efficacy’, this is a person's assessment of his or her capacity to successfully access an e-government service via a computer (or another technical device, such as a tablet or smartphone) [34]. Additionally, having used other health applications and having more smartphones overall are linked to favorable intents to use contact tracing apps. It is crucial to consider that self-efficacy for using apps declines with age [40]. According to [2], most citizens over the age of 65 are not tech-savvy compared to the younger generation. In the UK, there is a digital divide between the attitudes of people of different ages toward smartphone use, with young adults being more inclined than older residents to utilize contact tracing apps. Real uptake has been researched in many nations, including Australia and Switzerland, where these technological issues have been reported as a barrier to adoption [40]. Thus, authors formulate the following hypothesis:

H6: *Self-efficacy positively affects people's behavioral intention to use StaySafe.ph application during the pandemic.*

2.7 Behavioral intention (BI) & use behavior (UB)

Davis, Bagozzi, & Warshaw (1992), as cited by [20] observed that the user's behavioral intention determines how the technology is used [31]. However, according to [40], despite having an optimistic outlook or expressing the desire to use a contact tracing application, users do not really download, install, or use it. Emerging evidence from countries that successfully used contact tracing methods at an early stage in the outbreak, like Singapore, suggests that actual uptake might be considerably lower [37]. Prior study on contact tracing applications only measures users' overall intent to download the app [36], [18], [28]. However, effective contact tracing requires users to use the app actively and maintain it installed over time, thus just downloading it is insufficient [19]. Thus, authors formulate the following hypothesis:

H7: *Behavioral intention positively affects people's use behavior towards StaySafe.ph application during the pandemic.*

2.8 Moderating variables

2.8.1 Fear of Covid-19 (FoC)

This relates to how much people dread being sick and think they might catch the coronavirus (COVID-19). [6]. Also termed ‘COVID-19-related stress’, it indicates how individuals are worried about the consequences of the COVID-19 crisis. People will be more likely to use the app if they are more concerned about the effects of COVID-19 crisis [36]. The intention to test contact tracing programs and frequently use them is significantly influenced by the worry and feeling of vulnerability to COVID-19 infection as well as the perception of a high risk of infection [31]. Some studies show that the fear of COVID plays a direct moderating role with other constructs in research [25], [6]. Thus, authors formulate the following hypothesis:

H8: *Fear of Covid-19 moderates the relationship between performance expectancy and behavioral intention.*

H9: *Fear of Covid-19 moderates the relationship between effort expectancy and behavioral intention.*

H10: *Fear of Covid-19 moderates the relationship between social influence and behavioral intention.*

H11: *Fear of Covid-19 moderates the relationship between facilitating condition and use behavior.*

H12: *Fear of Covid-19 moderates the relationship between privacy concerns and behavioral intention.*

H13: *Fear of Covid-19 moderates the relationship between self-efficacy and behavioral intention.*

H14: *Fear of Covid-19 moderates the relationship between behavioral intention and use behavior.*

2.8.2 Age

It is important to consider the age and experience with digital technologies because self-efficacy for using apps declines with age [40]. Accordingly, younger ages are associated with a positive attitude towards contact tracing applications. France, Germany, Italy, the UK, and the US, respondents aged 18 to 40 are more likely to install contact tracing applications than respondents aged 50 and over [16]. Thus, authors formulate the following hypothesis:

H15: *Age moderates the relationship between self-efficacy and behavioral intention.*

3 Methodology

This paper aims to investigate the intention to use and usage behavior of citizens in Iligan City towards the StaySafe.Ph applications during the COVID 19 pandemic by considering their perspectives as well as the actual

uptake of the applications. This chapter discusses the research design, the participants, the locale, the data gathering procedure, and the method of data analysis.

3.1 Research design

This study adopted a quantitative research design. A survey questionnaire with a 5-point Likert scale is developed by integrating variables from UTAUT including additional variables drawn from technology-focused research in the context of the Covid-19 pandemic [36], [18], [21], [31]. The participants of this study comprised of 400 residents of Iligan City. The participant's ages range from 18 to 65 years old regardless of their gender. Moreover, we enquired about the respondents' age, gender, and educational backgrounds, among other demographic details.

3.2 Locale of the study

The City of Iligan was chosen as the setting of the study because of (1) the recorded high number of COVID-19 cases and high positivity rates of the city. With an Average Daily Attack Rate (ADAR) of 10.9 percent and a two-week growth rate of 26.19 percent, Iligan City is at a high risk. With more than 360,000 residents, the death rate is at 7.36 percent, which is attributed to a lack of testing, while the bed occupancy rate is at 94.11 percent [35]. Between December 2 and December 15, 2021, Iligan City had an average of 27 new cases, which was greater than the average of nine occurrences between November 18 and December 7, 2021 [11]. And (2) establishments in the city such as Gaisano mall have made the QR code generated in the Staysafe.ph application a requirement needed to be shown upon entry [15]. This serves as an implication of the necessity of the Staysafe.app usage among the residents in the city.

Iligan City is a 1st class highly urbanized city situated in Northern Mindanao (Region 10). Its overall land area is 81,337 hectares, divided among 44 barangays. The municipalities of Balo-I and Linamon in Lanao del Norte, Lugait in Misamis Oriental, Lanao del Sur and Bukidnon, and Iligan Bay form the southern, northern, eastern, and western boundaries of Iligan City [8]. According to the World Population Review (2021), Iligan City has a population of 367,634 as of the year 2021.

3.3 Data gathering procedure

A survey written in an online form was distributed through social networks. The researchers informed the respondents of their purpose in conducting the study. An online survey was used to gather the study's data. Each participant provided their informed consent prior to the administration. The study's scope and objectives were described by the researcher. Moreover, the researchers supplied explicit instructions throughout the delivery of the questionnaires to eliminate any ambiguous questions, and the respondents were given enough time to complete them. Respondents were instructed to answer the scales based on the scenario they are now in. Finally, participants were assured of the anonymity and confidentiality of their answers.

3.4 Treatment & Analysis of Data

Analysis of Moment Structures (AMOS) 26 and Statistical Package for the Social Scientists (SPSS IBM 20) are used in analyzing quantitative data. The measurement and structure model are appraised using Structural Equation Modeling (SEM).

To test the reliability of the constructs employed in this study, coefficients of Cronbach's Alpha is used using IBM SPSS Statistics (version 20). According to Hair et al. (2013), as cited by Mensah et al. (2020), a minimum Cronbach's alpha value of 0.70 indicates the reliability of constructs. In addition, convergent validity and discriminant validity of variables will be tested to compute the covariance estimates between the indicators or measured items, and between pairs of latent variables [3].

The hypothesis and relationships between the constructs are tested using licensed versions of SPSS AMOS (version 26). The analysis of the structural model through SEM is examined by assessing path coefficients among latent constructs and squared multiple correlations (R^2) values [7], [12], [14], [30]. Path coefficients or regression weights should be greater than .100 for the variables to be considered acceptable and a good fit in the research model. Either positive (in the predicted direction) or negative (in the opposite direction), path coefficients of regression weights should be significant at least at the 0.05 level [14], [30]. In addition, R^2 values of 0.67 are considered substantial, 0.33 as moderate, and 0.19 as weak [7].

Finally, to determine if a moderation variable has an effect on the relationship between a dependent and independent variable, the standardized values for variables are created in SPSS wherein values for interaction variables are computed. The SPSS data file is then imported to AMOS in order to perform a moderator analysis using multiple regression. This is done to identify the interaction effect between the independent variable and the moderating variable and to find out whether such an effect is significant in predicting the dependent variable [1].

4 Results and Discussion

This chapter presents the analysis and interpretation of the data gathered in the research study. It discusses the demographic profile of the respondents, the extent to which each construct affects the citizen's behavioral intention and use behavior towards the Staysafe.ph application, and the following moderators that influence specific constructs.

4.1 Demographic profile of the respondents who are citizens of Iligan City

Table 4.1.1 Frequency and percentage distribution of respondents according to gender, age, and highest educational attainment

Gender	Frequency	Percentage
Male	163	40.8
Female	237	59.3
Age		
18-25	148	37
26-33	64	16
34-41	123	30.8
42-49	55	13.8
50 or above	10	2.5
Highest Educational Attainment		
Elementary	16	4
Highschool	107	26.8
Bachelor's Degree	201	50.2
Master's Degree	50	12.5
Others	26	6.5

Note: $n = 400$

Table 4.1.1 reveals that most of the respondents are females (59.3 %), and the rest were males (40.8%). Largest portion of the respondents are aged 18-25 (37%), followed by ages 34-41 (30.8%), ages 26-33 (16%), ages 42-49 (13.8), and ages 50 or above (2.5%). Finally, the highest educational attainment of the respondents shows that 16 or 4 percent are elementary, 107 or 26.8 percent are high school, 201 (50.2%) are bachelor's degree, 50 or 12.5 percent attained master's degree, and 26 (6.5%) chosen others.

4.2. To what extent do performance expectancy (PE), effort expectancy (EE), social influence (SI), privacy concern (PC), and self-efficacy (SE) affect the behavioral intention of citizens in Iligan City towards StaySafe.ph application during the pandemic.

Table 4.2.1 Reliability and validity analysis of constructs (N=400)

Construct	Number of Items	Alpha (α)	CR	AVE
PE	5	.814	0.815	0.556
EE	5	.806	0.804	0.565
FC	5	.810	0.803	0.536
SI	5	.813	0.809	0.514
PC	5	.805	0.796	0.524
SE	5	.788	0.786	0.536
BI	5	.812	0.813	0.523

UB	5	.825	0.823	0.513
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Using Cronbach's Alpha and Composite Reliability, the measurement model's reliability and validity were evaluated, and the latent variables had to have a minimum value of 0.7 to pass [14]. Table 4.2.1 demonstrates that these requirements are met by the values collected for the measurement model. Given that the composite reliability and Cronbach's Alpha values are above the minimum needed value of 0.7, the reliability of the constructions can be viewed as satisfactory. Additionally, the average variance extracted (AVE) and the indicator's factor loading must be considered. The value ranges from 0 to 1. AVE values have exceeded 0.50 so the validity of the constructs is considered adequate.

Table 4.2.2 Relationship of independent variables on dependent variable

Relationship	Estimate	S.E.	C.R.	P-value	Hypothesis
PC BI	.072	.044	1.631	.103	Rejected
SE BI	.379	.050	7.519	***	Accepted
PE BI	.088	.049	1.811	.070	Rejected
EE BI	.124	.050	2.479	.013	Accepted
SI BI	.202	.052	3.856	***	Accepted
FC UB	.250	.049	5.125	***	Accepted
BI UB	.464	.047	9.790	***	Accepted

Notes: Legend: *p<0.05; **p<0.01; ***p<0.001 (statistically significant)

As shown in the table above, there is a significant association between behavioral intention (BI), SE, and SI ($p<0.001$), and EE ($p<0.05$), and between use behavior (UB), FC, and BI ($p<0.001$), indicating that the alternative hypothesis is accepted at the 0.05 alpha level of significance. However, with a p-value of .103 and .070 respectively, there is no significant relationship between the BI and PC, and between BI and PE, resulting in the rejection of the alternative hypothesis at 0.05 alpha (level of significance). Based on these results, H1 and H5 can be rejected. Meanwhile, H2, H3, H4, H6, and H7 can be supported. The significant relationship of the three constructs (SE, EE, & SI) accounts for 34% of BI (with an R2 of 0.34). While the significant relationship of the two constructs (FC & BI) accounts for 48% in UB (with an R2 of 0.48).

The findings reveal that even though respondents believed the app was effective in increasing their understanding of potential virus exposure and preventing its transmission, it had no bearing on their decision to use it. The result contrasts with previous studies wherein performance expectancy is considered one of the most critical factors influencing use intentions [33], [18]. In addition, the Staysafe.ph app is perceived by respondents as useful, however, it has a negative influence on the intention to use the same.

Respondents believe that the use of the app requires minimal effort, thus, positively influencing the intention to use Staysafe.ph during the pandemic. This finding is consistent with Tomczyk et al. (2021) that found effort expectancy as having a strong association with behavioral intention. In addition, the strong impact of social norms on behavioral intention as shown in previous studies is also validated in this study. Results show that if one's family or close social network supports the app use, one is more likely to engage with it. These results support existing research on social influence as an important predictor of behavioral intention [6], [36].

Moreover, respondents expressed their uncertainty in sharing personal health information in the app. Privacy has been proven in earlier studies to be a deciding factor for the acceptability of a certain technology [37], [2]. It is indisputable that privacy is important when discussing personal or medical information. It's interesting that, despite the worry that the app's data can be misused, such as when strangers use personal information unexpectedly, the intention to use the service is not severely impacted. This result has been seen in previous study wherein app-related privacy concerns negatively influenced intention [19].

Self-efficacy is the extended variable that affects the user's intention the most. The more an individual can use the app, the more one is inclined to install the app. Similar results were obtained in previous studies who found that people that have higher-technology readiness are significantly more inclined to install the application [19].

4.3. To what extent does *facilitating conditions (FC)* affect the use behavior of citizens in Iligan City towards StaySafe.ph application during the pandemic

Table 4.3.1 Mean and descriptive interpretation on the facilitating conditions (FC) towards the Staysafe.Ph application among citizens in Iligan city

FC	Mean	Descriptive Interpretation
1. I have the necessary smartphone to use the Staysafe.ph app.	3.61	Agree
2. I have the knowledge necessary to use the Staysafe.ph app.	3.66	Agree
3. The Staysafe.ph app will be compatible with other technologies I use on my smartphone.	3.62	Agree
4. I have access to the internet or mobile data needed to use the Staysafe.ph app.	3.71	Agree
5. A specific person (or group) is available for assistance with difficulties when using the Staysafe.ph.	3.44	Agree
Weighted Mean	3.61	Agree

As seen in the above table, “I have access to the internet or mobile data needed to use the Staysafe.ph app.” has the highest mean of 3.71 or “Agree”, while “A specific person (or group) is available for assistance with difficulties when using the Staysafe.ph.” has the lowest mean of 3.44 or “Agree”. The weighted mean is 3.61 or “Agree”. Results suggest that the respondents have adequate support and resources for the use of the Staysafe.ph such as information to support the use of the app and the availability of smartphone needed to install the application.

Facilitating condition is found to positively influence the usage behavior of the respondents towards the Staysafe.ph. Individuals' adoption of the app may be affected by the availability of several factors that promote technology use, such as information and assistance. These findings strengthens the finding that access to appropriate smartphones and an internet connection are essential for contact tracking apps to be effective in promoting public health in the fight against COVID-19 [2]. Similarly, facilitating conditions a strong predictor of technology use [17].

4.4. To what extent do the following moderators influence specific constructs such as;

Table 4.4.1. Test of relationship between moderators and specific constructs

Dependent	Interaction Variable	Estimate	S.E.	C.R.	P-value	Hypothesis
BI	AGE_SE	-.092	.035	-2.633	.008	Rejected
BI	FoC_PE	-.051	.036	-1.403	.161	Rejected
BI	FoC_EE	.002	.035	.062	.951	Rejected
BI	FoC_SI	-.009	.032	-.273	.785	Rejected
BI	FoC_PC	-.060	.034	-1.756	.079	Rejected
BI	FoC_SE	-.023	.033	-.693	.489	Rejected
UB	FoC_FC	.038	.041	.919	.358	Rejected

Notes: Legend: *p<0.05; **p<0.01; ***p<0.001 (statistically significant)

Multiple regression analysis was used to test the influence of the moderators on specific constructs, and the results are summarized in the table above. Results show that the interaction between age and self-efficacy does

not have a significant impact on behavioral intention. In addition, the interaction between fear of Covid-19 to performance expectancy, effort expectancy, social influence, privacy concern, self-efficacy, and facilitating condition does not have a significant impact on behavioral intention and use behavior. Based on these results H8, H9, H10, H12, and H13 can be rejected.

Fear of Covid-19 had no effect on all six aspects of behavioral intention to use the app. This contrasts with the results of previous studies that public perception of the risks of a disease will have a significant influence on the intention to use contact tracing applications [31], [6]. Moreover, the interaction of self-efficacy and age do not have a significant influence on behavioral intention. Contrary to several earlier studies, this shows that elderly persons are substantially less likely to use contact tracing apps [16], [40]. However, the results prove that Covid-19-relate fear or stress including age is not significantly related to app use intention [36].

4.5. To what extent does behavioral intention (BI) affect the use behavior (UB) of citizens in Iligan City towards StaySafe.ph application during the pandemic

Table 4.5.1. Test of relationship between behavioral intention (BI) and use behavior

Relationship	Estimate	S.E.	C.R.	P	Hypothesis
BI □ UB	.464	.047	9.790	***	Accepted

Data shows there is a significant relationship between behavioral intention to use behavior with $p < 0.001$ and their interaction accounts for 48% of the variance in UB (with an R^2 of 0.48). Based on the data this implies that H7: Behavioral intention positively affects people's use behavior to adopt contact tracing applications during the pandemic is accepted. This result revealed a consistent finding on the strong positive relationship between behavioral intention and actual use [29].

Results confirmed that the behavioral intention to use the Staysafe.ph is an important predictor of its usage, which is an important finding in the study. The relationship between these constructs has been confirmed in several studies that examined technology acceptance [20], [6]. On the other hand, government app's acceptability does not correspond to actual usage [10]. This is due to the decreased quantity of COVID cases, wherein accepting members of the public perceived that tracking COVID-19 is unnecessary, resulting in the observed intention-behavior gap.

5 Conclusion and Recommendations

This study examined the behavioral intention and use behavior of citizens in Iligan City towards the Staysafe.ph application during the COVID 19 pandemic. Finding elements that can influence intention and behavior can be made easier with the use of the extended UTAUT model. Among them, effort expectancy, social influence, facilitating conditions, and self-efficacy were particularly important. Further research is necessary to investigate performance expectancy due to its inverse associations with behavioral intention and use behavior.

Overall, the formal release of the Staysafe.ph app was accompanied by a higher acceptance and more optimistic views. This study thus supports the idea that users would be eager to use the Staysafe.ph app if they found it to be simple to use, if it was supported by their social networks, and if they had the knowledge and resources needed to use it. Moreover, any privacy concerns that an individual has regarding the use of the app are not a significant handicap in using the application. Although the respondents are skeptical about the privacy issues surrounding the use of data generated in the app, data shows it did not affect their intention to install and use the app.

There is an important point for improvement for this research as well as future research, the demographic profile of the respondents is not representative of the whole population. The majority of the respondents are composed of younger participants which can influence one's perception of the technology. Moreover, younger respondents might have different opinions about the Staysafe.ph app compared to older respondents. Further, it would be of interest to conduct similar research with a more representative sample between different localities in the country.

In general, respondents deemed the Staysafe.ph as helpful in limiting the spread of the COVID-19 infection, it is easy to use, and despite users' awareness of security risks, it did not affect their intention in using the application. Since ease of use was found to be an important influencing factor in encouraging users to install the app, it is recommended that the government can introduce the application in a user-friendly manner. To make the use of the app clearer and more relevant, facilitating circumstances should be added, such as a help function, a tutorial, or testimonials from other users of the technology. Moreover, the design of the application should be easy to interact with and simple to use, which will reduce one's energy and effort associated with the use of the app. The influence of social networks/norms in using Staysafe.ph provides implications on how the use of the app is communicated to the public. Promoting the app as an expression of social responsibility (e.g., protecting one's family and friends) can be helpful in increasing public acceptance of contact tracing applications. Additionally, peer-to-peer promotion and endorsement from medical professionals and well-known influencers may help promote the use of the app.

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