

Fear of missing out during a pandemic: the driving factors of telemedicine application acceptance

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ABSTRACT

COVID-19 pandemic changed how society behaves. Travel and social restrictions, commonly associated with the term lockdown became popular and ubiquitous. Given the rise of gig economy and mobile app delivery in the past several years, combined with lockdowns during the pandemic, and the application of telemedicine becomes essential. Halodoc is one of the popular telemedicine applications in Indonesia, having several useful features such as text-based doctor consultation and prescription drug order-delivery, and Halodoc is easily preferred by many. This article explored the motivation behind using Halodoc as the preferred method of getting health service during the pandemic, behind the perceived usefulness and perceived ease of use of the application, we found that fear of missing out (FOMO) has an indirect role in the application adoption in society, especially during lockdowns, where social interaction is limited to social media and other internet-based platforms. The reason why FOMO can be an important factor in technology adoption and how advertisers should explore FOMO is further discussed.

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1. INTRODUCTION

COVID-19 pandemic forces humanity to shut their activities down, Indonesians are no exception. During the pandemic, many countries encourage all of their citizens healthy and sick to stay at home. Healthcare services were also burdened by the increase of COVID patients and many of them closed their outpatient care services [1].

In Indonesia, the government enforces lockdown-like social and travel restrictions. This restriction applies differently in each district according to their respective COVID severity levels. During the restrictions, many hospital and small clinics also limit their patients. Often, hospital and small clinics encourage the usage of whatsapp chats and video calls to patients who want to consult with their doctors [2]. Telemedicine application vendors saw this opportunity even before the pandemic happened. Telemedicine application enables its users to consult directly with the doctor of their choice, offering broad options of specialists with various prices via encrypted internet protocol. With the increasing availability of such applications, many hospitals and health clinics shifted their outpatient consultation services online using the available third-party telemedicine applications and some hospital even made their own telemedicine platform, although the encryption and security aspects remain questionable [3], [4].

Telemedicine in Indonesia comes in many forms, some of them piggybacked on known applications such as zoom meetings and whatsapp. Some of them are offered by start-up companies, such as Halodoc, Alodokter, and SehatQu. Those services offer general health consultation with a GP, specialized polyclinic consultation with specialists, and pharmacy service, which also include doctor's prescription reading and drug delivery [5]. Figure 1 shows screenshots of Halodoc, a leading telemedicine application in Indonesia.

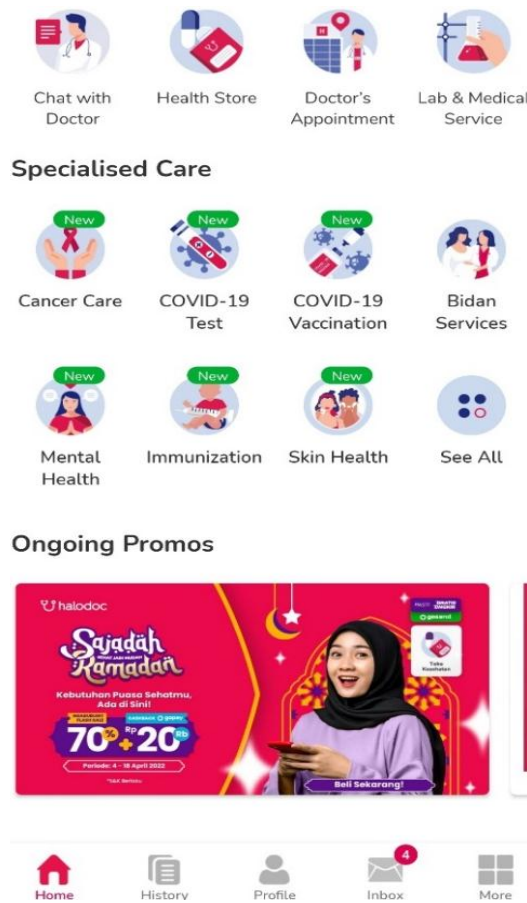


Figure 1. Main page of Halodoc

Other than the clear benefit of the reduced chance of infection during the pandemic, telemedicine offers many benefits. According to previous studies, telemedicine can reduce costs of healthcare, eliminating the need for room sanitation and other consumables, replaced by video calls. Telemedicine also enriches their users with prior health-related knowledge, further reducing their initial fear of going to the doctors. Travel costs can also be eliminated, using the app, patients won't have to go outside their homes [3], [6], [7].

With clear benefits of using telemedicine applications especially during a pandemic, the plethora of telemedicine applications should receive a surge of new users. However, only select applications remain at the top of the competition. Recently, the Indonesian Ministry of Health issued a list of telemedicine applications which deemed as the most popular and usable applications in Indonesia, packed with features suitable for independent isolation due to COVID-19 [8], [9]. Still, what motivates Indonesian users to use specific application? Is it the user interface/user experience (UI/UX)? or other factors?

Indonesians are collectivists in nature, it is written in the national constitution and ideology [10], [11]. During lockdown-like social restriction, many resorts to social media to keep informed of their friends, families, relatives, or even their favorite (and most hated) celebrities [12], [13]. The spiked usage of social media during lockdown is largely due to the decreased social interaction between Indonesians, the safest option to socialize with each other is through those platforms. Indonesian young adults are no exception, they made the biggest chunk of social media users, often spends more than 4 hours a day scrolling the timeline [14].

Often, given the high collectivism in Indonesian, people wanted to keep up with the trends. Social media engagement supports this instinct and amplifies it. The term fear of missing out (FOMO), popped out

with the increase of social media trends, describing the innate feeling of being left out by the people who they know, or people who they idolize [15], [16].

Indonesian young adults often followed their friends because of something cool they did on social media. Even though "something cool" is highly subjective, the social media algorithm emphasizes trending topics and suggests content to users based on those trends, acting like accidental advertising, or controversially, a planned astroturfing [17]–[19]. This behavior is usually preceded by FOMO and many companies or even political parties can piggyback on it. FOMO may also explain why Indonesian young adults adopt telemedicine applications. Knowing whether FOMO can influence telemedicine application adoption can give insight into whether the telemedicine application is actually useful for the people during the pandemic or just another ephemeral trend.

Previous studies explore the factor of Halodoc acceptance, those factors include the classical technology acceptance model factors, perceived usefulness, and perceived ease of use. Some also introduced other socio-psychological factor such as trust, perceived risk, social influence, and self health awareness [5], [20], [21]. However, fear of missing out was never explored for its potential role behind the motivation.

Fear of missing out differs from social influence in the source of the influence of behavior. Social Influence often attributed with the persuasion power of specific individual, such as religious leader or respected person which influences people to specific behavior [22], [23]. Contrarily, FOMO comes from within, it is the feeling of being left out, disregarding the source of the trend. FOMO is the desire of staying online, not wanting to miss anything that happened and always wanting to stay trendy [15], [16], [24].

Therefore, studying factors that motivates user to use halodoc as telemedicine application may provide insights for telemedicine provider to improve their service and make interesting advertising campaigns. With increased users, the benefit of using telemedicine can be observed. Thus, this study aims to measure the user's acceptance towards telemedicine applications specifically Halodoc using technology acceptance model and FOMO as a construct. Moreover, to identify whether telemedicine popularity in Indonesia is an inevitable change or just another fleeting trend.

2. METHODS

This study employs classical technology acceptance model by [25] to measure intention to use and added FOMO as a construct to identify whether FOMO plays a role in adoption behavior. The analysis was conducted using SmartPLS 2 to test the relationship between the construct and measure the goodness of fit [26]. The conceptual model of this study is depicted on Figure 2.

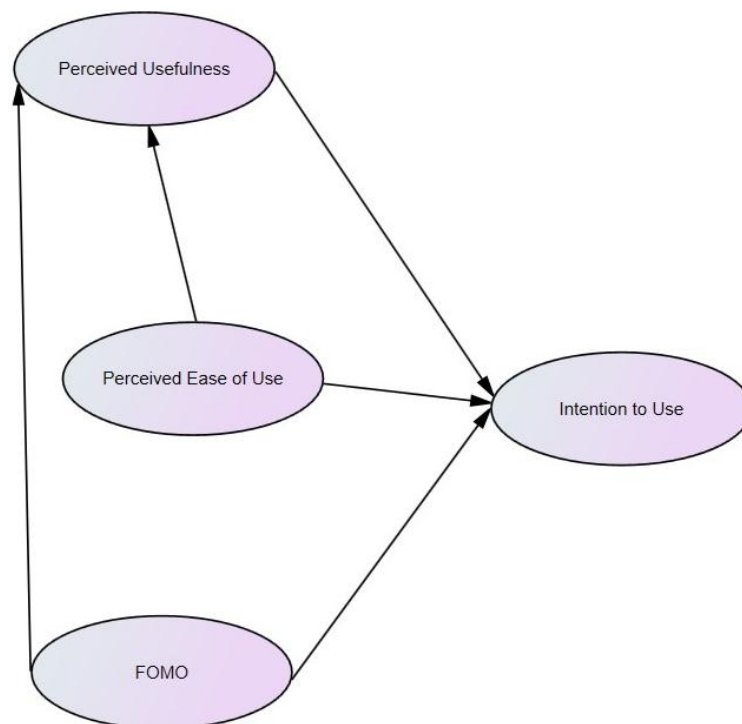


Figure 2. Conceptual model

Figure 2 shows the hypothesis to be tested in this study. The relation between perceived usefulness and perceived ease of use is unchanged from the original TAM, while the addition of FOMO as a construct added the hypothesis of potential influence of FOMO to perceived usefulness. Perceived usefulness is hypothesised to be affected by FOMO due to the notion that people with FOMO would feel that they have to use the application to keep up with the trends thus, perceiving the application to be useful. Therefore, perceived usefulness is hypothesized to be the mediator variable for perceived ease of use and FOMO. The four constructs included in the model are perceived usefulness (PU), perceived ease of use (PEU), FOMO, and intention to use (IU). These four constructs were measured using 5 indicators each using 5-point likert scale, except for Intention to use which only measured with 2 indicators.

PU, PEU, and IU indicators were adopted from previous studies and modified according to the current case of Halodoc [5], [20], [22], [25]. Furthermore, FOMO indicators were also adopted from previous studies which were able to formulate Likert-scale measurement questionnaire to reflect the level of FOMO in the respondent [15], [16]. The complete list of english-translated questionnaire is available on the appendix section. The population of this study includes young adult (aged 35 years old) which are assumed to use social media daily, this is due to the found connection between social media usage and FOMO [15]. The survey was done using google forms and disseminated through personal text messaging app which were sampled using snowball sampling. All personal identification in the data were stripped, except age, and gender for demographical purposes.

The construct was measured for its reliability using Cronbach's alpha. The Cronbach's alpha values for each construct were listed on Table 1 and all measures were deemed reliable. The conceptual model is then converted into a structural equation model using SmartPLS 2, the data were loaded into the model and analyzed for its fit [26].

Table 1. Constructs reliability

Constructs	Cronbach's Alpha
Perceived usefulness	0.83
Perceived ease of use	0.80
FOMO	0.65
Intention to use	0.78

3. RESULTS AND DISCUSSION

The data collection was conducted between August 14th to 18th 2021 online using google forms. The total respondents for this study is 129 people, all aged under 35 years old. Figure 3 shows the demographic of the respondents. The respondents consisted of mostly female young adult (71%) shown in Figure 3(a), and a reasonably distributed age range shown in Figure 3(b) with the highest education of mostly high school (48%) shown in Figure 3(c), indicating that the respondents are likely undergraduate students. While the rest of the respondents received higher education, stipulating privilege in internet access and information technology. Such demographic is preferred in this study due to previous strong finding of FOMO in digital access privileged communities [27].

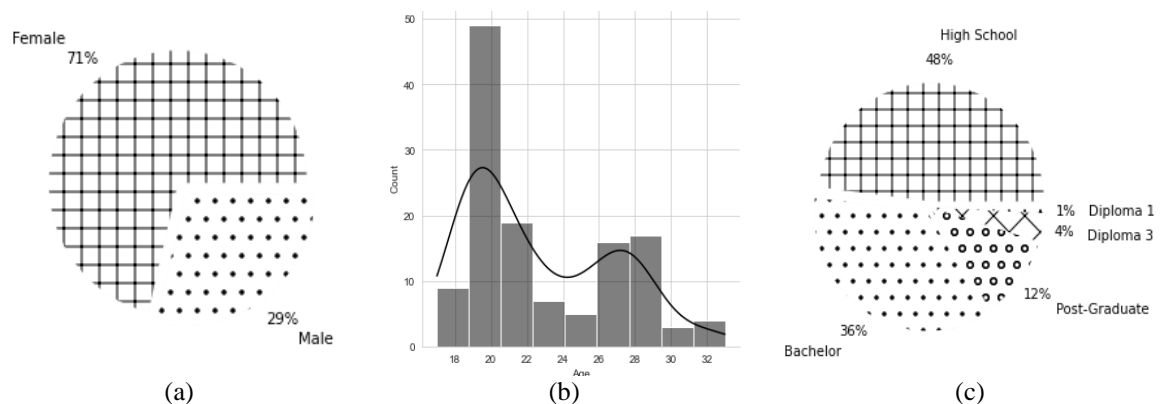


Figure 3. Respondents' demographics (a) respondents' gender, (b) respondents' age distribution, and (c) respondents' education level

Figure 4(a) shows the usage behavior in Halodoc, most users use Halodoc to seek health related information, while also uses Halodoc for its main component, which is teleconsultation with a doctor. However, prescription and over-the-counter medicine order features are less used, although Halodoc spends a lot of resource in it. Furthermore, Figure 4(b) shows Halodoc usage frequency, users use Halodoc quite rarely showing that they only use Halodoc when feeling sick or needed some information regarding their current health condition. Linking the usage behavior, users rarely use Halodoc out of curiosity, showing that Halodoc is in their mind when required.

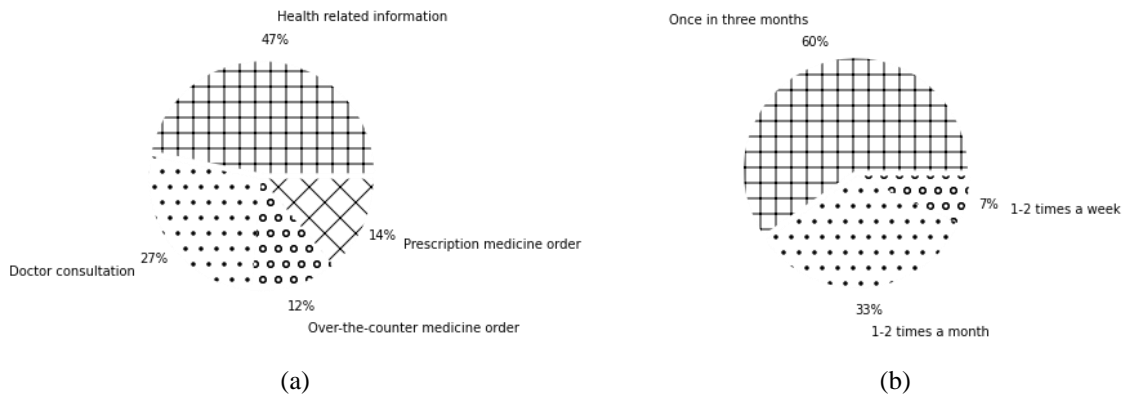


Figure 4. Respondents' usage behavior (a) Halodoc uses and (b) usage frequency

3.1. Model test

Using SmartPLS 2, the dataset were loaded into the model. Each construct indicators are checked for its factor loading and indicators with less than 0.4 factor loading are eliminated from the model to improve the model fit [28]. Table 2 shows how the indicators load into the constructs. As seen, indicator FOMO4 was removed from the model and then re-run. After removing the indicator that has the low factor loading, the model is re-run. As seen on Table 3, the original technology acceptance model still holds true for this model.

Table 2. Factor loadings

	FOMO	IU	PEU	PU
FOMO1	0.741705	0.000000	0.000000	0.000000
FOMO2	0.506835	0.000000	0.000000	0.000000
FOMO3	0.501945	0.000000	0.000000	0.000000
FOMO4*	0.398942	0.000000	0.000000	0.000000
FOMO5	0.826001	0.000000	0.000000	0.000000
IU1	0.000000	0.919113	0.000000	0.000000
IU2	0.000000	0.903845	0.000000	0.000000
PEU1	0.000000	0.000000	0.780865	0.000000
PEU2	0.000000	0.000000	0.789078	0.000000
PEU3	0.000000	0.000000	0.778808	0.000000
PEU4	0.000000	0.000000	0.716507	0.000000
PEU5	0.000000	0.000000	0.729558	0.000000
PU1	0.000000	0.000000	0.000000	0.824716
PU2	0.000000	0.000000	0.000000	0.845264
PU3	0.000000	0.000000	0.000000	0.718304
PU4	0.000000	0.000000	0.000000	0.689391
PU5	0.000000	0.000000	0.000000	0.831391

Note: * indicates removed indicator

Table 3. Hypotheses test result

	Path coefficient	P-value
FOMO -> IU	0.04	0.17
PEU -> IU***	0.23	< .00001
PU -> IU***	0.48	< .00001
FOMO -> PU**	0.08	.004
PEU -> PU***	0.69	< .00001

Note: *p<0.05; **p<0.01; ***p<0.001

Specifically, PU and PEU has significant direct influence to IU. Also, FOMO direct effect on IU is not statistically significant. However, FOMO has significantly influence PU and has a significant indirect effect to intention to use, albeit small. Nevertheless, FOMO has a significant direct effect to perceived usefulness and the role of FOMO as PU's antecedent factor cannot be ignored. The result can also be seen on Figure 5 which has each path coefficient and r-squared depicted.

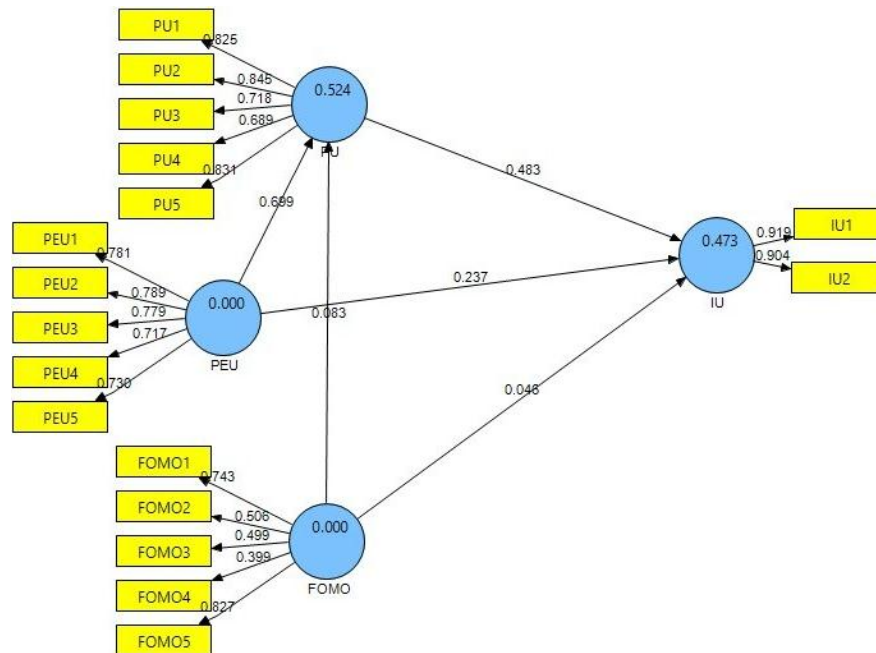


Figure 5. Structural equation model result

3.2. Discussion

Young adults tend to use social media in an hourly basis. The plethora of fast-moving information and updates keep them engaged, ranging from less important updates such as selfies to globally important news updates. With FOMO being present in society, the power of social media as the new hypodermic needle is needed to be reckoned with. FOMO as a factor has never been used before in technology adoption studies. This study found that FOMO did not directly influence the user's behavior of adoption. However, FOMO significantly influence perceived usefulness.

Perceived usefulness and perceived ease of use as the original variable from technology acceptance model still significantly predicted user's intention to adopt [25]. Also, some studies suggest methods on how to increase perceived usefulness in adopters to enhance technology adoption. Namely, using extension as a program to educate early adopters about the benefit of using new technology [22], [29].

With the discovery of FOMO's role in increasing perceived usefulness, it is apparent that social media the alleged main cause of FOMO can act as a media to promote the usefulness of Halodoc or other telemedicine application. Fear of missing out acted as the innate driving factor for social media users to keep checking out their accounts. Thus, promoting the benefit and usefulness of telemedicine application such as Halodoc, can improve user's perception of benefit towards the application.

This inference also holds true for the indirect effect of perceived ease of use to intention to use through perceived usefulness. If a user thinks that the application is easy to use, he will also think that using the same application can save his time (to learn how to use the application). Therefore, the user thinks that the application saves his time in doing some tasks. Hence, the indirect effects from FOMO and perceived ease of use are important in predicting user's intention to use, and ultimately predicting the actual behavioral change.

4. CONCLUSION




This study attempted to analyze fear of missing out role in technology adoption, especially among young adults. FOMO's role in technology adoption was found to be indirect. Specifically, FOMO acts as an

antecedent for perceived usefulness. This study concludes that FOMO has a role in Halodoc's adoption and recent popularity, that Halodoc should be concerned in keeping the hype among its users. Although FOMO has small contributions to perceived usefulness, its role should not be ignored properly. This finding can be utilized by telemedicine application advertiser or social media manager by constantly updating users and adopters on the application benefit. Such continuous extension program can keep the trend of telemedicine application usage benefit at the top of the discourse. Using social media to both promote and educate users about the benefit in using Halodoc is vital.




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