

Analysis of Measuring Behavior of Phubbing in Adolescents in Bekasi City

Fadilah Fitria Harahap, Onik Wahyu Utami, Alfalah Putri Nura'rafaa
202110515247@mhs.ubharajaya.ac.id
Fakultas Psikologi Universitas Bhayangkara Jakarta Raya

Abstract

Phubbing is the behavior of ignoring social interaction to focus on smartphones. The use of smartphones by adolescents tends to reduce social interaction between peers. The urgency of measurement and research on phubbing lies in its negative impact on communication and social relationships, as well as the importance of prevention efforts to improve the quality of human interaction. The purpose of this study is to obtain indicators of phubbing measurement in adolescents in the phenomenon of social interaction. The theory used refers to the theory of Karadağ et al., (2015) Aspects of phubbing include communication disorders and obsession with mobile phones. The analysis method used in this study used a discriminatory power test and Confirmatory Factor Analysis, the respondents who were willing to be involved in this study amounted to 196 adolescents. This measuring tool consists of 10 items, of which 3 items have been declared irrelevant after the discrimination power test. The results of the analysis showed that the remaining 4 items had unique measurements for adolescents. The results obtained that the indicator of staring at the smartphone screen when with other people, busy using smartphones when with friends, and feeling that there is something lacking without a smartphone is an indicator that is able to represent the subject based on phenomena. The phubbing measuring instrument through the CFA test showed that this instrument was not fit.

Keywords: Phubbing, Teenagers, Measuring Tools

Introduction

In an era where technology continues to develop rapidly, especially with the presence of smartphones, a behavioral phenomenon known as phubbing has emerged as a major challenge in social interaction. Phubbing refers to the tendency to ignore the people around us by busily using mobile phones or gadgets (Isrofin, 2020). The word phubbing comes from the word "phone" which refers to mobile phones and the word "snubbing" which means to harass. Phubbing is when an individual engages in in-person social interaction, he or she prefers to check their phone, reply to messages, or use social media rather than actively interact with the people around them. Phubbing is also considered a behavior that does not pay attention to others when establishing social relationships due to

focusing too much on smartphones and tending to ignore the interlocutor. So that when communicating they sometimes continue to respond to the interlocutor, but with less than optimal intensity and ineffective (Ariyanti et al., 2022) The phenomenon of smartphone use for adolescents makes teenagers, often seen busy with smartphones, more focused on smartphones and indifferent to the surrounding environment so that they are less likely to build conversations between their peers (Kurnia et al., 2020).

Phubbing behavior can be measured through two aspects, referring to the theory (Karadağ et al., 2015) that aspects include communication disorders and obsession with mobile phones. Interruptions in communication occur when a person frequently interrupts the process of a face-to-face conversation that is happening using their mobile phone. This behavior prioritizes smartphone use over direct interaction with colleagues, such as paying attention to the phone when gathering to eat or busy with gadgets when eating with friends, without realizing that it can disturb the conversation partner. Obsession with mobile phones here refers to the constant need to use mobile phones in all conditions even when they are not gathering and interacting with others. Another form of obsession with the cell phone shown is a cell phone that is placed somewhere that is easy to reach for ease in checking email notifications. This repetitive act of checking notifications can reduce the time allocated to other activities, such as social interactions when eating together. Often, the availability of smartphone features results in users using their devices beyond the appropriate limits, leading to behavior that is less concerned about the surroundings or becomes indifferent to the surrounding environment (Abivian, 2022)

Excessive use of information technology on individuals can have a negative impact on people's morale, especially with a decrease in interpersonal interaction in the social environment. As a result, the researchers felt the need to create a tool that could measure the level of phubbing in individuals (Syahputra et al., n.d.). The importance of scaling phubbing behavior emphasizes that this behavior, which refers to "phone snubbing" has a detrimental impact on social interactions and relationships. Phubbing can disrupt communication and reduce eye contact with the interlocutor, making it urgent to understand and measure (Najah et al., 2023). In addition, People affected by phubbing have a higher risk of social exclusion, this will have an impact on those who are addicted to social media thus creating an isolated and isolated life (David & Roberts, 2017).

The development of a phubbing behavior measurement tool aims to design interventions or preventive measures to reduce phubbing behavior. With a better understanding of the effectiveness of preventive measures, we can improve the quality of interpersonal interactions. The main goal is to create an environment

where each individual feels valued and connected more deeply in their social relationships. Phubbing behavior, unknowingly, can disrupt the dynamics of the community and hinder the process of interacting with other individuals. This emphasizes the importance of awareness of the consequences of phubbing behavior on interpersonal relationships (Mariati & Sema, 2019). Reducing the level of phubbing behavior can increase feelings of appreciation for other individuals and improve the quality of interpersonal interactions. This illustrates the effort to strengthen social relationships and increasing meaningfulness in interpersonal communication (Irawati & Nurmina, 2020).

Literature Review

Conceptual Definition Phubbing is a term that refers to a person's behavior when ignoring others, not building or developing relationships with them, and not connecting with them because they are more focused on mobile devices (Karadağ et al., 2015). This phubbing behavior describes indifference to the existence of others when they are together, because they prefer to be engrossed in their phones rather than interacting with the surrounding environment (Chotpitayasunondh & Douglas, 2018). Al-Saggaf & O'Donnell (2019) Phubbing is the behavior of ignoring others in social situations by focusing on smartphones rather than the interactions that occur around.

Phubbing behavior is defined operationally as behavior to pay more attention and respond to the smartphone so that it does not focus on the communication process that it is undergoing. The phubbing behavior is obtained through the total score of the phubbing measuring tool taken from the theory of karadag et al., (2015) which consists of two aspects, namely communication disorders and obsession with mobile phones

Dimension

According to karadag, et al (2015) phubbing behavior consists of two aspects:

1. **Communication disorders**

Interruptions in communication occur when a person frequently interrupts the process of a face-to-face conversation that is happening using their mobile phone.

2. **Obsession with mobile phones**

Obsession with mobile phones here refers to the constant need to use mobile phones in all conditions even when they are not gathering and interacting with others.

Research Methods

The respondents who filled out this study were 202 adolescents. According to Santrock (2011), adolescence begins at the age of 10-12 and ends at the age of 18-

22 years. Based on this information, the respondents in this study have the following characteristics: Adolescents aged 10-22 years, domiciled in Bekasi, and have a smartphone. Data collection uses internet media based on *google form*. *Google forms* are distributed through the WhatsApp application when meeting with teenagers or research friends who have families that match these characteristics. However, in the editing process, the overall number of subjects who answered willing to be involved as respondents was 196 adolescents, and 6 other respondents answered that they were not willing. So the researcher decided to delete respondents who answered unwillingly. Thus, the number of subjects who are willing to participate in the research and the data can be continued in the analysis process amounted to 196 respondents.

The measuring tool shared online uses a Likert scale, with 5 alternative answers for each statement, namely never (TP), rarely (J), sometimes (KK), often (S), always (S). All statements are *favourable* items, the researcher uses a value of 1 for never, 2 for infrequent choices, 3 for occasional choices, 4 for frequent choices, and 5 for always. In this study, there are several analysis methods carried out to achieve the research objectives. The first analysis uses a discriminatory power approach, which is the ability of an item to measure different groups of individuals on an attribute. The goal is to drop items that are not correlated. The next data analysis technique used is *Confirmatory Factor Analysis* (CFA). CFA is a validity measurement technique used to ensure that each item in the measurement instrument is in accordance with the construct to be measured, as well as to determine the whether each of these items significantly contributes to the measurement of that construct. In other words, CFA is used to verify that all items consistently measure a single construct (unidimensional) according to the measurement objectives (Putra, 2015). In addition, the purpose of this CFA is to find the items that are most relevant to the characteristics of the subject within the phenomenon.

Here is a blueprint of the phubbing behavior measurement tool:

Table 1. Phubbing Behavior Scale Grid

No.	Aspects	Indicator	Question Item
1	Communication Disruption	Staring at a smartphone screen when with others	I keep my smartphone open even when I'm talking to someone else I was able to split my focus to listen to others and watch youtube I reply to messages while talking to others

		Busy using a smartphone when with friends	I prefer to play with my smartphone rather than talk to other people
		Others feel disturbed related to the use of smartphones	I don't care if other people are offended when I use my smartphone while interacting I got a reprimand for putting down my smartphone while chatting
2	Obsession with mobile phones	Holding a smartphone continuously	When I first woke up, the first thing I did do is checking my smartphone I spend more time with my smartphone
		Feeling like something is missing without a smartphone	I play my smartphone even though it's on the charge I feel anxious when my smartphone is left behind

Results and Discussion

The results of the analysis confirm that the prepared measuring tool has passed a series of careful validity and reliability tests. Thus, it can be concluded that the measuring tool has sufficient validity to identify phubbing behavior among adolescents. The reliability of this measuring tool is proven through the consistency of the results of measuring phubbing behavior in various situations and contexts of adolescent social interaction. These findings give confidence that the measuring tool can be relied on as an effective research instrument in measuring the level of phubbing in adolescents. Data obtained from 196 respondents were analyzed using JASP 0.18.3.0. At the initial stage, this was carried out by a discriminatory power test

Table 2. Descriptive Statistics

	Valid	Missin g	Mean	Std. Deviation	Range	Minimu m	Maximu m
Gender	196	0					
Age	196	0					
Level of Education	196	0					

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	Valid	Missin g	Mean	Std. Deviation	Range	Minimu m	Maximu m
Intensity of smartphone use	196	0					
Frequently used apps	196	0					
1. I keep my smartphone open even when I'm talking to someone else	196	0	2.413	1.158	4.000	1.000	5.000
2. I am able to divide my focus to listen to others and watch youtube	196	0	2.622	1.317	4.000	1.000	5.000
3. I reply to messages while talking to others	196	0	2.633	1.158	4.000	1.000	5.000
4. I prefer to play with my smartphone rather than talk to other people	196	0	2.423	1.194	4.000	1.000	5.000
5. I don't care if others get offended when I use smartphone when interacting	196	0	1.714	1.067	4.000	1.000	5.000
6. I got a reprimand for putting down my smartphone while chatting	196	0	2.255	1.342	4.000	1.000	5.000
7. I play my smartphone even though it's on the charge	196	0	2.724	1.361	4.000	1.000	5.000
8. I feel anxious when my smartphone is left behind	196	0	3.332	1.399	4.000	1.000	5.000
9. When I first woke up, the first thing I did was check my smartphone	196	0	3.464	1.386	4.000	1.000	5.000

Table 2. Descriptive Statistics

	Valid	Missin g	Mean	Std. Deviation	Range	Minimu m	Maximu m
10. I spend more time with my smartphone	196	0	3.138	1.338	4.000	1.000	5.000

The above descriptive results show that the 10 questions, first: the majority of respondents (average score >2.0) tend to agree or have a tendency in some phubbing behaviors, such as keeping their smartphones open while talking to others (average score 2,413), replying to data messages while talking to others (average score 2,633), and playing smartphones instead of talking to others (average score 2,423), Second, there is variation in the level of approval or tendency towards phubbing behavior, which is indicated by a fairly wide range of values between the minimum and maximum scores of each question item. Third, there are indications that some phubbing behaviors may be more common than others, such as checking the smartphone for the first time after waking up (average score of 3.464a0 and feeling anxious when the smartphone lags behind (average score of 3.332), which indicates a higher approval rate than other items.

Table 3. Statistical reliability if an item is discriminated against

Item	If item dropped	
	Cronbach's α	Item-rest correlation
1. I keep my smartphone open even when I'm talking to someone else	0.705	0.518
2. I am able to divide my focus to listen to others and watch youtube	0.750	0.205
3. I reply to messages while talking to someone else	0.719	0.417
4. I'd rather play with a smartphone than talk to someone else	0.727	0.356
5. I don't care if others are offended when I use my smartphone while interacting	0.737	0.271
6. I got a warning for putting down my smartphone while chatting	0.739	0.281
7. I play my smartphone even though it's on the charge	0.708	0.481
8. I feel anxious when my smartphone is left behind	0.732	0.331

Table 3. Statistical reliability if an item is discriminated against

Item	If item dropped	
	Cronbach's α	Item-rest correlation
9. When I just woke up, the first thing I did was check my smartphone	0.697	0.543
10. I spend more time with my smartphone	0.682	0.639

The items that have been tested are analyzed for item discrimination using the corrected item-correlation approach. Azwar (2017) stated that the item-total correlation that reaches the minimum value has a difference power is considered satisfactory. The results of the analysis of the discriminatory power of the item obtained from the phubbing behavior scale showed that the value of the discriminatory power of the item moved from 0.205 to 0.639. This shows that there are several items that are unacceptable with the discriminatory power criteria. The items that were dropped, namely items number 2, 5, and 6, were declared dead because the value of discrimination power > 0.30 . Meanwhile, item number 1,3,4,7,8,9,10 got an item-rest correlation value of < 0.30 which indicates that the item is good and adequate in distinguishing test subjects. So the remaining items are 7.

Table 4. Statistics Consistency of the phubbing behavior scale

Estimate	Cronbach's α
Point estimate	0.758
95% CI lower bound	0.702
95% CI upper bound	0.805

Data was obtained from the results of the measurement involving 196 respondents

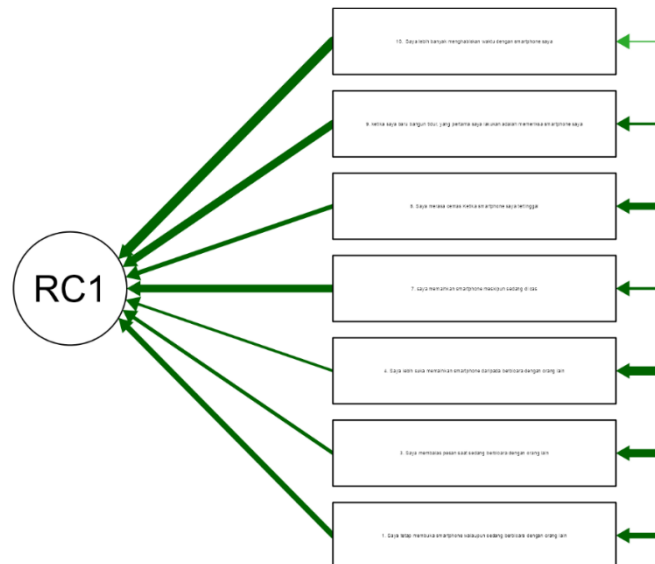
7 items that pass the discrimination test will be analyzed for reliability. The analysis of the reliability test can be seen from the value of Cronbach's Alpha. If the value of Cronbach's Alpha value > 0.60 , it is said to be reliable (Ghozali, 2016). If the value of Cronbach's Alpha > 0.60 then the questionnaire or questionnaire prepared is declared consistent or reliable and if Cronbach's Alpha < 0.60 then the questionnaire or questionnaire prepared is declared unreliable or inconsistent. From the results of this study, the research instrument has a Cronbach's Alpha value of 0.741, so all question items are declared reliable.

Tabel 5. Component Loadings RC1 dan Uniqueness

	RC1	Uniqueness
10. I spend more time with my smartphone	0.816	0.334
9. When I first woke up, the first thing I did was check my smartphone	0.729	0.468
7. I play my smartphone even though it's on the charge	0.725	0.474
1. I keep my smartphone open even when I'm talking to someone else	0.619	0.617
8. I feel anxious when my smartphone is left behind	0.560	0.686
3. I reply to messages while talking to others	0.515	0.734
4. I prefer to play with my smartphone rather than talk to other people	0.469	0.780

In the preparation of the phubbing behavior scale, from the initial 10 items that have been called out have been reduced to 7 items. After the Principle Factor Analysis test, it was found that item number 1,3,4,8 had a good uniqueness value because it was above 0.60. Meanwhile, item number 7,9,10 has a low uniqueness value because it is below 0.60.

Figure 1.
Path diagram of 10 measurement items



The RC1 path diagram shows that there are 3 items whose strength is not optimal to measure phubbing behavior in adolescents. There are 4 items whose strength is appropriate to measure phubbing behavior. The item that has optimal power is item number 1 I keep my smartphone open even when I am talking to others, item number 3 I reply to messages while talking to others, item number 4 I prefer to play with my smartphone rather than talking to others, and 8 I feel anxious when my smartphone is left behind. These items represent indicators of staring at the smartphone screen when with others, busy using smartphones when with friends, and feeling that there is something missing without a smartphone.

Table 6. Measurement fit indicator

Goodness of fit Index	Cut-off Value (Hair et al., 2019)	Model Results	Information
Chi-square	>0,05	< .001	Model does not fit
RMSEA	<0,08	0,103	Model does not fit
SRMR	<0,08	0,060	Model fit
GFI	>0,09	0.987	Model fit

Based on the results of the CFA test in the table above, it can be seen that the RMSEA value is 0.103. RMSEA is one of the formative indices in SEM. If the chi-square value indicates that the model does not fit because the resulting value is

<.001, this is still tolerable because the chi-square is biased towards the large sample size (Yidiana, 2020). RSME < 0.08 then indicates a fit model. The RMSEA value produced in this study is at a value of 0.103 which means that the RMSEA has a poor match. The next model fit assessment is Standardized Root Mean Square Residual (SRMR). The Standardized Root Mean Square Residual represents the square root of the difference between the residue of the sample coarians matrix and the hypothetical model. The model is said to be fit if $p < 0.08$. The SRMR value in this study is 0.060 which means the model is said to be fit. And finally, the model is said to be fit if the GFI has an index value above 0.90. The GFI produced in this study has an index value of 0.987 which means the model is said to be fit.

Discussion

The results of the research data obtained from 196 respondents were tested through the discriminatory power of items. The discriminatory power of items in this study is seen from correlating items with total items in one typology. The discriminatory power value of the 10 items tested was 0.205 – 0.639. Azwar (2021) explained that good and acceptable item discrimination data is as large as items that do not meet the standard criteria can be excluded from the blueprint. From the results of the discrimination test carried out, there were 3 items that were declared disqualified because the results obtained did not meet the criteria, consisting of question instruments number 2,5,6.

Next, measurements are taken to measure the reliability of the entire item. The phubbing behavior analyzer used in this test has a good level of item reliability with high internal consistency of the measuring instrument. A measuring tool is said to be reliable or reliable if a person's answer to a statement is consistent or stable over time (Shaughnessy et al., 2012). Reliability tests are carried out on question items to find out the extent to which the measurement results remain consistent or have relatively similar results when re-measuring the same object or phenomenon. Low reliability reflects the inconsistency of respondents in answers.

The remaining items from the results of the discrimination test will be subjected to a *Principle Factor Analysis test*, judging from the RC1 and Uniqueness tables, this test will produce a Uniqueness value. The results of the *Principle Factor Analysis test* show that of the 7 items that have been reduced from the initial 10 items, there is a difference in the uniqueness value between these items. Items number 1,3,4 and 8 have a good uniqueness value, which is above 0.60 indicating that these items make an optimal contribution in measuring phubbing behavior in adolescents. Meanwhile, items number 7,9, and 10 have a low uniqueness value, being below 0.60. This indicates that these items have low power in measuring

phubbing behavior, so their contribution to the measurement of phubbing behavior is not optimal.

The number item "I keep my smartphone open even when I'm talking to someone else", reflects the direct behavior of phubbing that occurs when teenagers are interacting directly with others but paying more attention to their smartphones. The item "I reply to a message while talking to someone else" describes a phubbing behavior that ignores direct social interaction in favor of responding to a message on a smartphone. The item "I would rather play with a smartphone than talk to others" indicates the priority given to smartphone use compared to in-person social interaction. The item "I feel anxious When my smartphone is left behind" reflects an emotional dependence on the device, which is one of the phubbing behaviors. Of the overall items that meet the uniqueness value, the indicators of staring at the smartphone screen when with others, busy using smartphones when with friends, and feeling that there is something lacking without a smartphone are indicators that describe phubbing behavior in adolescents.

Then, the researcher continued the confirmatory analysis or *Confirmatory Factor Analysis* (CFA), with the aim of testing whether the items scattered in the construct of phubbing behavior in adolescents overlapped between indicators. The validity test of the measuring tool is carried out by the Confirmatory Factor Analysis Technique which is based on a number of logics, namely: first, that there is a trait or concept in the form of an ability that is defined operationally so that questions or statements can be prepared to measure it. This ability is called a factor, while the measurement of this factor is carried out through the analysis of the sample of existing items. Second, it is theorized that each item or subtest is unidimensional. Third, the available data can be used to estimate this correlation matrix called sigma, then compared to the empirical data matrix called the S matrix. Fourth, the statement is made into a null hypothesis which is then tested with chi square. If the chi-square value is not significant $p > 0.05$, then the null hypothesis is rejected. This means that the unidimensional theory is acceptable that an item or instrument subtest only measures one factor ($\sum \sum$) (Fuadi & Saloom, 2021).

The Chi-Square value in the overall match test of the model shows a value of $< .001$, this result is not in line with the size of the model match level, that is, the smaller the value is better () so this model is said to be incompatible. However, keep in mind that the Chi-square value is very sensitive to the size of the sample. Since it is recommended to look at the index of other fit models that are relatively insensitive to the size of the sample, the most recommended is to look at the RMSEA index. By using the statistical method of confirmatory factor analysis, the RSMEA model index of 0.103 was obtained which showed that the model was not

fit with an acceptable level of RMSEA $\geq 0,05 < 0,08$. In addition, it can also be seen with another model index that strengthens, namely a GFI of 0.987, in this index shows a fit model (GFI > 0.90), SRMR results which also show a fit model of 0.060 (SRMR < 0.08). By looking at the results of the index, it can be said that the unidimensional model of phubbing behavior tested is unacceptable. This means that the 2 dimensions in the construction of the phubbing behavior measuring instrument measure the same thing, namely the behavior of adolescents.

Conclusion

The phubbing measuring instrument that had been prepared and filled in by the respondents was then tested through a discriminatory power test and Confirmatory Factor Analysis. The discriminatory power test is a test to measure an item's ability to measure different groups of individuals on an attribute. The reliability results of the behavior scale either have a good or consistent reliability value. On this scale of research, there are three items that have low rest correlation items so they are not included in the next test. Then next is the principle factor analysis, this result shows that the indicators that represent the characteristics of the subject are staring at the smartphone screen when with others, busy using the smartphone when with friends, and feeling that there is something missing without a smartphone. And the results of the last construct validity test, namely through confirmatory factor analysis, show that this measurement scale shows a model that does not fit because the Chi-Square and RSMEA values have index values that do not meet the requirements.

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