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# Exploratory Factors Analysis of Shaping Phubbing Behavior in Adolescents

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**Abstract**

This research aimed to identify factors shaping phubbing behavior among adolescents in West Java. The research used mixed methods, including a qualitative stage to examine item themes with 100 respondents and a quantitative stage to identify psychometric characteristics with 1,016 respondents. The data analysis technique employed in the qualitative stage was open coding, while the quantitative stage involved two techniques, specifically Exploratory Factors Analysis (EFA) and measurement model testing using Structural Equation Modeling (SEM) with a Partial Least Squares (PLS) approach. The combination of qualitative and quantitative analysis techniques allows for a more comprehensive understanding of the data. The results showed that the instrument construct has high-reliability coefficients (α = .79). The convergent validity value shows outer loadings > .7 and AVE > .5, and discriminant validity with cross-loading and Fornell-Lacker higher than other latent variables. Typical factors shaping phubbing behavior are found among adolescents, including withdrawal, compulsion, and euphoria.

**Keywords:** phubbing, exploratory factors analysis, partial least squares, validity, reliability

**Abstrak**

Penelitian ini bertujuan mengidentifikasi faktor-faktor pembentuk perilaku *phubbing* remaja di Jawa Barat. Penelitian menggunakan metode campuran, yaitu tahap kualitatif untuk mengeksplorasi tema *item* melibatkan 100 responden, sedangkan tahap kuantitatif untuk melakukan identifikasi karakteristik psikometri melibatkan 1,016 responden. Teknik analisis data tahap kualitatif menggunakan *open coding*, sedangkan tahap kuantitatif terdiri atas analisis faktor eksploratori (EFA) serta pengujian model pengukuran menggunakan *structural equation modelling* (SEM) dengan pendekatan *partial least square* (PLS). Hasil menunjukkan bahwa konstruk instrumen memiliki koefisien reliabilitas tinggi (α = .79). Sementara itu, nilai validitas konvergen menunjukkan *outer loadings* > .7 dan AVE > .5 serta validitas diskriminan dengan nilai *cross loading* dan Fornell-Lacker lebih tinggi dibandingkan variabel laten lainnya. Faktor-faktor pembentuk perilaku *phubbing* yang khas ditemukan pada remaja di Jawa Barat yaitu penarikan diri, perilaku kompulsi, dan euforia.

**Kata Kunci:** *phubbing*, analisis faktor eksploratori, *partial least square*, validitas, reliabilitas

## Introduction

The advancement of information and communication media in the millennial era has brought about various changes in social interaction patterns within society. (Afdal et al., 2019). The evolution of communication devices has been marked by the emergence of various technologies, starting with the telephone, developing into the cellphone, and finally transforming into the smartphone. Although the cellphone was initially used for calling and messaging, its capabilities began to expand during the smartphone era. As a result, the smartphone has significantly simplified ways of maintaining interpersonal relationships (Kang et al., 2015), completing tasks, and entertainments (Kang et al., 2015). Between 2016 and 2019, the number of active smartphone users in Indonesia increased from 65.2 million to 92 million. In 2019, Jakarta alone accounted for a staggering 52 million smartphone users aged between 15 and 23 (Damashinta, 2019).

Despite its benefits, attachment to a smartphone also has negative social consequences (Nazir & Pişkin, 2016). This aligns with a growing literature body that shows excessive use of smartphones may

result in habits that disrupt daily life and have a negative impact on mental well-being (Cheever et al., 2014). Vanden Abeele et al. (2019) stated that Persistent smartphone use during group discussions, gatherings or social interactions create a barrier to closeness with their friends, inhibit expression and limit conversation engagement. Another effect of smartphone use is phubbing, a newly coined term that is currently receiving significant attention in research

The term "phubbing" is derived from "phone snubbing" and describes individuals who prioritize using their gadgets over interacting with others or their environment (Pathak, 2013). This term was coined in 2012 by a team of formulators consisting of language and cultural experts (lexicographers, phoneticians), debaters, and sociologists who gathered at the University of Sydney, Australia (Hansen et al., 2018).

Numerous factors have been identified by experts as the root causes of phubbing behavior. For instance, Karadağ et al. (2016; 2015) stated that phubbing is a combination of technology addiction. According to Chotpitayasunondh and Douglas (2016), internet addiction, fear of missing out, and self-control lead to phubbing behavior through smartphone addiction. Additionally, it is associated with fundamental internal characteristics of individuals such as personality types (Jihan & Rusli, 2019; Erzen et al., 2019; Fritz, 2018; Çikrikci & Griffiths, 2019), low empathy (Mumtaz, 2019), low self-control (Chotpitayasunondh & Douglas, 2016), and low emotional intelligence (Juliah, 2019).

Phubbing behavior has been widely observed in most social places, including cafes or restaurants (Dwyer et al., 2018; Karadağ et al., 2015), in business meetings, lectures, and even at home (Al-Saggaf & Macculloch, 2019). It is a common behavior that has started to be accepted as a norm (Chotpitayasunondh & Douglas, 2016). However, Nazir and Bulut (2019) stated that when communicating face-to-face, people feel frustrated and annoyed when the conversation partner is only focused on their smartphone. According to Dwyer et al. (2018), using a smartphone while in a face-to-face conversation is a sign of low emotional respect. Similarly, David & Robert (2017) established that phubbing behavior can have significant damage to the relationship between two conversing partners. In line with Al-Saggaf and Macculloch's (2019) report, phubbing has negative effects on relationship satisfaction, conversation quality, life satisfaction, and mood. Ridho (2019) stated that phubbing affects the social interaction of adolescents, erodes sympathy toward the conversation partner, and results in negative social contact, such as conflicting communication or temporarily lost interactions, and anger from the one ignored.

To understand factors that predict phubbing, preliminary research was conducted using an open questionnaire with 100 respondents aged 18 to 21. Five of the respondents who completed the open questionnaire were selected for follow-up interviews to further explore their reasons for phubbing. The answers were then categorized based on keywords, response similarity, and meaning with coding analysis. The results showed various factors contribute to phubbing, including (i) bored with the social situation, (ii) problems with conversation topics, (iii) bad mood, (iv) inability to focus on learning, (v) refreshing efforts, (vi) the virtual world is more fun, (vii) reflexively checking social media notifications, (viii) playing with a smartphone, (ix) feeling that phubbing behavior is not good but still performing it, (x) feeling sympathy and guilt towards ignored friends, (xi) replying to messages, (xii) browsing information on social media, (xiii) playing games, and (xiv) feeling a smartphone more interesting.

The findings of this preliminary research are vital because they reveal some factors that differ from those identified in previous studies. These novel factors suggest that there are yet unidentified predictors of phubbing behavior not been previously examined. One of the most popular and widely used

instruments is phubbing scale developed by Karadağ et al. (2015), where factors shaping phubbing behavior include (i) accepting or making phone calls while communicating, (ii) replying to text messages while communicating, (iii) checking social media notifications while communicating, (iv) attachment to the phone, (v) anxiety when away from the smartphone, and (vi) difficulty in regulating smartphone use. Karadağ et al. (2015) did not include, in their phubbing scale factors such as feeling bored with the social situation, having difficulty with conversation topics, being in a bad mood, struggling to focus while learning, finding the virtual world more enjoyable, playing with smartphones, feeling guilty about phubbing behavior, and experiencing sympathy for ignored friends.

In recent years, several researchers from various national and international institutions have examined phubbing behavior in research and developed psychological measurement tools. However, the development of a measurement tool generally constructed from theory to indicators sometimes does not fit the background and contexts of the respondents (Muhid et al., 2015). This is because the domains or aspects contained in the current psychological measurement tools may not fully represent the unique aspects of phubbing in the Indonesian community of adolescents. Additionally, the contexts underlying engagement of individual in phubbing behavior can affect their uniqueness, which is also related to their inherent characteristics (Davey et al., 2018). The intensity of phubbing behavior can also be explained by age group involvement, sociodemographic factors, economic status, and education level (Nazir & Pişkin, 2016). Therefore, indicators of phubbing behavior can be explained by many other factors not been considered in previous research.

The discovery of new sub-themes in preliminary research and the existence of a conceptual gap indicates the importance of researching factors that shape phubbing behavior based on empirical data within the Indonesian context. According to Chotpitayasunondh and Douglas (2018a) research on phubbing is still in its growth phase. New aspects may reveal items that are not currently included in existing scale. Therefore, there is a need for the development and adaptation of a measurement tool that is in synergy with the rapid technological developments in various countries.

## Methods

The research design used mixed methods, which is highly suitable for developing a measurement tool (Creswell, 2017). The first stage involved qualitative research aimed at conceptualizing phubbing behavior. This stage explored the reasons why individuals engage in phubbing through an open-ended questionnaire and semi-structured individual interviews as the basis for instrument development. The data was then analyzed, and the results are used as the basis for the second stage, which involves quantitative research. In this stage, the measurement tool was developed based on the dimensions constructed in the qualitative stage and validity and reliability of the instrument are examined.

The participants are adolescents aged 15 to 21 years who reside in West Java. In the qualitative research phase, 100 individuals were selected using non-probability quota sampling due to the unknown population size. The quantitative research followed the sample size standards based on Nunnally and Bernstein (1994). The research tested 75 items with a ratio of 10, requiring a minimum sample size of 750, though a total of 1,016 participants were obtained.

In the qualitative stage, phubbing behavior themes were examined using open-ended questionnaires and interviews. The questionnaire responses and interview verbatim were analyzed using line-by-line coding to determine their categorization. The coding results were used as the basis for creating phubbing behavior instrument items through the statement correction process. In the quantitative stage, psychometric

properties were identified through construct validity and reliability testing.

The data was analyzed using Exploratory Factors analysis (EFA) to identify various factors shaping a construct and reflective measurement model testing with Partial Least Squares (PLS) for validity and reliability.

## Results and Discussion

In the qualitative stage, the results were obtained through an exploration of an open-ended questionnaire, which was analyzed using a coding technique. The responses were categorized based on keywords, similarity, and meaning (Charmaz, 2006). From the readability test results, answers that better characterize the theme of phubbing behavior were selected and then combined into several categories. Table 1 shows the categorization results.

Table 1
*Coding Analysis Results*

| No. | Category |
|---|---|
| 1. | Bored with the situation |
| 2. | Problems with conversation topics |
| 3. | Mood problems |
| 4. | Inability to focus on learning |
| 5. | Refreshing efforts |
| 6. | Intrigued by notifications or information on social media |
| 7. | Worried about missing information |
| 8. | Anxious when not carrying a smartphone |
| 9. | Internet-connected |
| 10. | Playing games |
| 11. | Chatting |
| 12. | Scrolling social media |
| 13. | The virtual world is more fun |
| 14. | The smartphone is more interesting |
| 15. | The habit of checking smartphone |
| 16. | Checking information from social media notifications |
| 17. | The smartphone is not out of reach |
| 18. | The conversation partner also plays with their smartphone |
| 19. | Feeling that phubbing behavior is not good but still performing it |
| 20. | Phubbing is normal behavior |
| 21. | Feeling sympathy and guilt towards ignored friends |
| 22. | Accepting when reprimanded |
| 23. | Reprimanded |
| 24. | Verbal Aggression |
| 25. | Not accepting when reprimanded/scolded |
| 26. | Efforts to self-control from smartphone use |

Line-by-line coding was followed by focused coding (Table 2). According to Charmaz (2006), focused coding requires making decisions about which initial codes can generate the most analytical meaning to make the data categories clear and complete. At this stage, different codes were compared, and some were combined into one due to their similarity.

Table 2
*Focused Coding*

| Big Theme | Coding | No Item |
|---|---|---|
| Coping | Inability to focus on learning | 52, 23, 37 |
| | Problems with conversation topics | 22, 11, 54 |
| | Mood problems | 38, 21, 73 |
| | Refreshing efforts | 1, 55, 12 |
| | Bored | 20, 36, 53 |
| | Intrigued by notifications or information on social media | 39, 2, 56 |
| Obsession | Worried about missing information | 3, 40, 24 |
| | Anxious when not carrying a smartphone | 4, 25, 57, 65 |
| | Internet-connected | 26, 13, 5, 6 |
| Compulsion | Playing games | 58, 41, 27 |
| | Scrolling social media | 66, 14, 43 |
| | The virtual world is more fun | 67, 69, 28 |
| | The smartphone is more interesting | 7, 15, 42, 74 |
| | The smartphone is not out of reach | 8, 68, 29 |
| | The habit of checking smartphone | 16, 30, 51, 72, 9 |
| | The conversation partner also plays with their smartphone | 10, 31, 44 |
| Cognitive Dissonance | Feeling that phubbing behavior is not good but still performing it | 50, 32, 17 |
| | phubbing is normal behavior | 62, 47, 33 |
| Guilty Feeling | Feeling sympathy and guilt towards ignored friends | 45, 61, 63 |
| Interpersonal Conflict | Reprimand | 18, 46, 71, 70 |
| | Verbal Aggression | 34, 48, 60 |
| Self Control | Efforts to self-control from smartphone use | 19, 49, 59, 64, 35 |

For example, the codes of "bored with the situation," "problems with conversation topics," and "mood problems" were merged into a broader theme of coping. The merged codes were not eliminated but presented in a new code or a broader theme of coping. This coding was then used as the basis for creating phubbing behavior instrument items.

The focused coding produced 7 themes and 24 indicators. These factors and indicators were then constructed into an instrument containing 75 items of phubbing behavior and tested on 1,016 adolescents in West Java. The data were tested using the Kaiser-Meyer-Olkin (KMO), Measure of Sampling Adequacy (MSA), and Bartlett Test Sphericity statistical tests. The KMO value is .918, while the Bartlett Test of Sphericity was 24259.770 at 2775 degrees of freedom with a significance level of .000. According to Kaiser (1970), the categorization value of $.9 \leq KMO \leq 1$ has a very good (marvelous) degree of data variance, indicating very good sample adequacy. The MSA value shows that other items can explain the correlation between items and is suitable for factors analysis. Furthermore, EFA with parallel analysis estimation, oblique rotation, and evaluation using total item correlation forms 21 items with good differentiation values (total item correlation value $\geq 3$). Factors were then named by considering the underlying and representative properties of the items collected in one factors (table 3).

The results of the reflective measurement model testing using the PLS approach explain the variance proportion of each item or indicator in a factors or latent variable (Leguina, 2015). The first measurement model was convergent validity with outer loadings $\geq .7$. Figure 1 shows that in the outer loading, several indicators are still $\leq .7$. Therefore, these items needed to be removed from the model because the large correlation between indicators and latent variables does not fulfill convergent validity standards. Reducing indicators was performed by re-estimation.

Table 3
*Phubbing Instrument Construction Results*

| Item | Factors Name | | | |
|---|---|---|---|---|
| | With-drawal | Compul-sion | Smart-phone Obsession | Euphoria |
| 71 | .716 | | | |
| 58 | .673 | | | |
| 66 | .656 | | | |
| 69 | .597 | | | |
| 60 | .570 | | | |
| 40 | .470 | | | |
| 15 | .456 | | | |
| 19 | | .580 | | |
| 16 | | .572 | | |
| 28 | | .506 | | |
| 51 | | .485 | | |
| 72 | | .482 | | |
| 3 | | | .749 | |
| 4 | | | .700 | |
| 5 | | | .549 | |
| 65 | | | .503 | |
| 1 | | | | .518 |
| 12 | | | | .494 |

Based on the presentation of the evaluation results on the AVE value (Figure 1), apart from several items on phubbing scale of Karadağ et al. (2015) (right), items on the researcher-constructed phubbing behavior instrument (left), including PD1, PD2, PD4, PD6, PK2, O1, and O4 were reduced. From the re-estimation (figure 2) of path diagram 2, new structural components with outer loadings $\geq .7$ were found. The greater the value of outer loadings, the stronger the items correlation to factors formed. However, the reduction of several items did not provide many corrections to the estimated value of the relationship pattern between factors of phubbing behavior instrument and phubbing scale. All factors had a correlation value below .5 with some being negative. According to Chin (2010), in case the correlation value between factors in the same two constructs is low or even close to zero, there are significant differences between factors in the two constructs. This can be observed in the discriminant value, which can describe these differences.

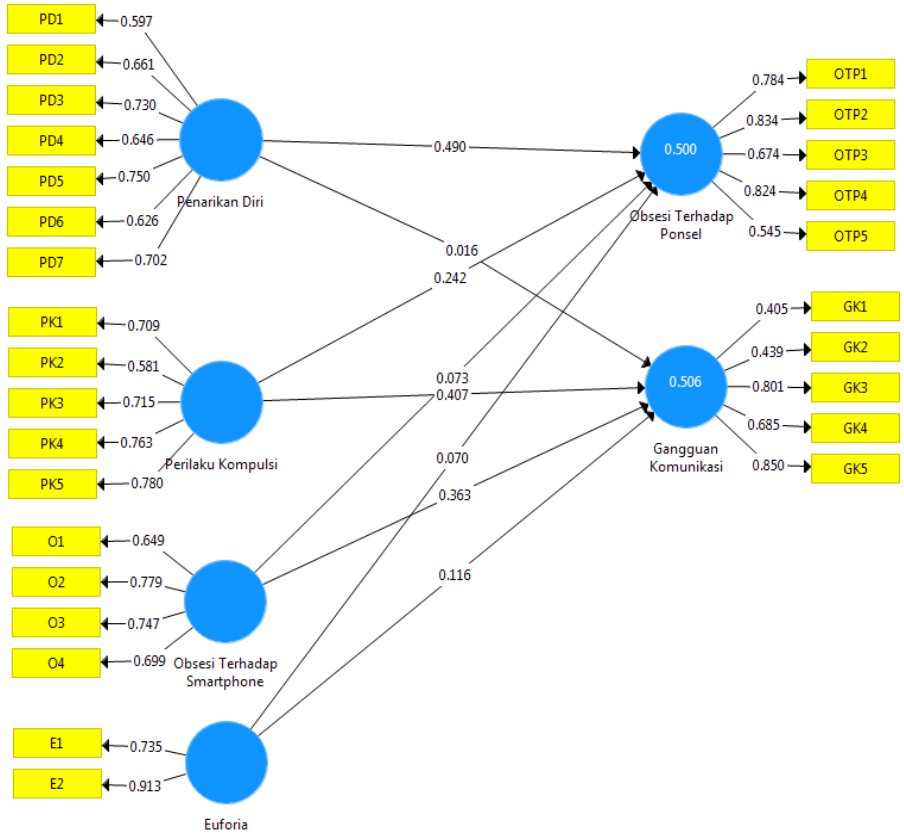


*Figure 1*. Outer loading estimation results

Discriminant validity was assessed by examining the root value of Average Variance Extracted (AVE) using the Fornell-Larcker criterion (Table 4). This resulted in a root value of AVE that was greater than the cross-correlation of other factors. Therefore, all factors demonstrated discriminant validity.

Finally, the composite reliability value of all factors has a value > .7. This means that the consistency between the items on the instrument has a reliable measurement function. Table 5 shows the output obtained.

The psychometric analysis identified 4 factors shaping phubbing behavior, including withdrawal, compulsion, smartphone obsession, and euphoria through a series of sequential psychometric processes. In this research, the large sample size with specific characteristics (adolescents) represents strength and helps provide high statistical power for analysis. This is certainly a differentiator from other phubbing behavior instruments. Karadağ et al. (2015) conducted a research on 401 university students in Turkey (114 males and 287 females) with an average age of 21 years, which identified two factors underlying phubbing behavior, specifically communication disorders and smartphone obsession.

Table 4
*Fornell-Larcker Output*

| | Fornell-Larcker Criterion | | | |
|---|---|---|---|---|
| | W | C | SO | E |
| Withdrawal | .801 | .459 | | .269 |
| Compulsion | | .758 | | .396 |
| Smartphone Obsession | .157 | .350 | .854 | .283 |
| Euphoria | | | | .830 |

Table 5
*Measurement Reliability*

| | Composite Reliability |
|---|---|
| Withdrawal | .843 |
| Compulsion | .843 |
| Smartphone Obsession | .843 |
| Euphoria | .813 |

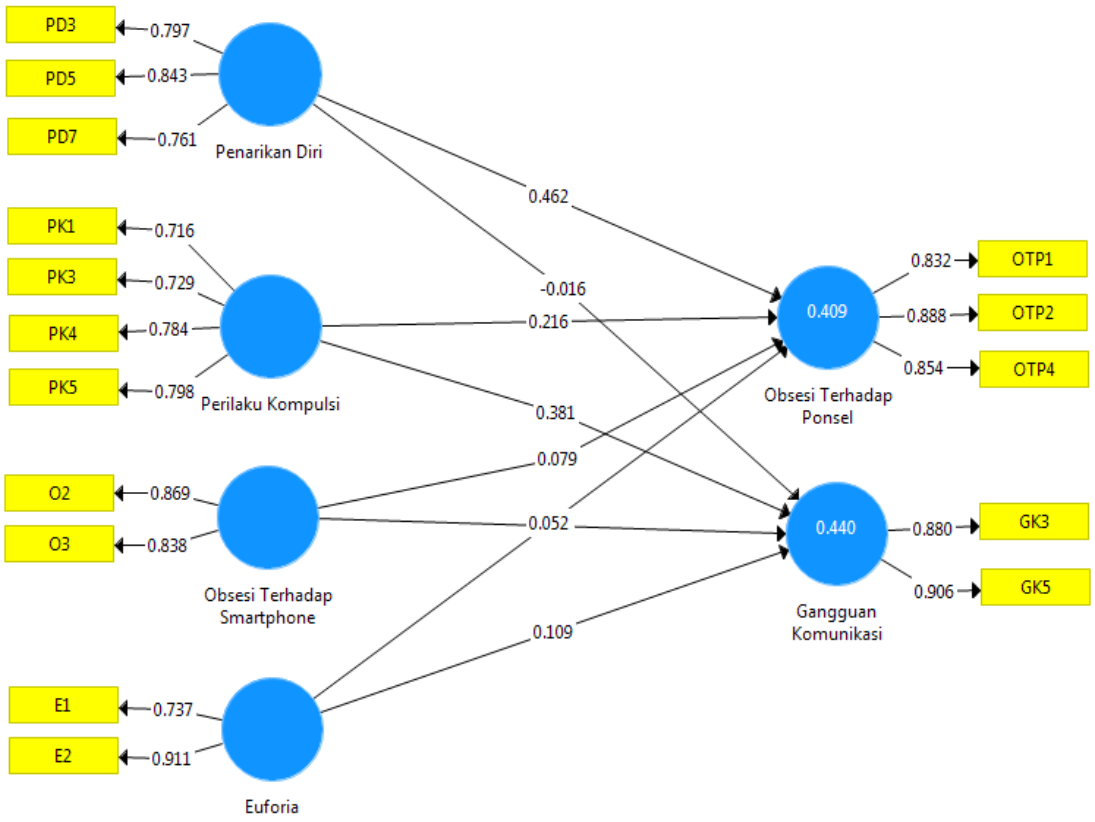


*Figure 2.* Results of re-estimation of outer loading

Chotpitayasunondh and Douglas (2016) examined 251 participants (93 males and 158 females) aged 18-66 years in the United Kingdom. Several factors that contribute to phubbing behavior were identified, including nomophobia, interpersonal conflict, self-isolation, and problem recognition. Furthermore, Roberts and David (2016) developed a phubbing scale but focused more on phubbers with their partners. This scale was structured based on 4 shaping factors, including individual attitude towards a smartphone, engagement with a smartphone, conflicts generated by using a smartphone, and smartphone addiction.

The use of rigorous statistical procedures to develop and validate scale from coding analysis, EFA, validation through expert judgment process, and measurement model testing is another strength of this research. The Indonesian version of this phubbing behavior instrument shows good validity and reliability. Therefore, it can be used as a tool to measure factors shaping phubbing behavior, though it does not produce indicators that precisely measure actual phubbing behavior. This is because of symptoms of smartphone addiction or other non-phubbing behavior. The following 4 factors shaping phubbing behavior after psychometric testing and measurement model are presented.

The first factors are withdrawal which consists of 3 items. This factors have a composite reliability of .843 and can explain 64.1% variation in factors shaping phubbing behavior. Withdrawal is a factors that characterizes phubbing behavior itself. As demonstrated by extensive research, phubbing involves behavior that prioritizes smartphone usage over direct social interaction, showing less concern for the social interaction process (Afdal et al., 2019; Al-Saggaf & O'Donnell, 2019; Chotpitayasunondh & Douglas, 2016; 2018b; Hanika, 2015; Nazir & Bulut, 2019; Qasim, 2019; Roberts & David, 2017; Schneider & Hitzfeld, 2019; T'ng et al., 2018). This can be

caused by factors inside and outside the individual. According to Davey et al. (2018), such factors may be personal or situational. Personal factors include introversion, willful neglect, fatigue, and lack of interest in talking to the other person. Understanding social values, curiosity or desire to stay informed, and the ability to manage oneself or foster social relationships affect individual withdrawal from the social environment and choice to play with a smartphone (Afdal et al., 2019).

The second and third factors are compulsion and smartphone obsession. Both factors have a composite reliability of .843 and can explain 57.4% and 72.3% of the variation in factors shaping phubbing behavior, respectively. Smartphone obsession is similar to those on phubbing scale from Karadağ et al. (2015). Therefore, this factors consistently shape phubbing behavior in adolescents in West Java. Similar to the sample in Karadağ et al. (2015), smartphone obsession has the highest variance score in factors shaping phubbing behavior. This obsession indicates that respondents constantly need their smartphones while in face-to-face communication.

In the psychology literature, obsession and compulsion are often closely related because excessive thoughts or obsessions can lead to repetitive behavior or compulsion. Chotpitayasunondh and Douglas (2018b) note that individuals who engage in phubbing behavior often experience a compulsive concern for their smartphones and struggle to control their usage. This is because phubbing is considered a form of non-substance addiction (Fauzan, 2018). According to Karadağ et al. (2016; 2015), phubbing is a combination of addiction to a smartphone, social media, the internet, and games. Chotpitayasunondh and Douglas (2016) stated that internet addiction, fear of missing out, and self-control can predict phubbing behavior through smartphone addiction. Individuals who experience addiction have difficulty disengaging from the situation and lack the self-control to perform certain activities. Smartphone addiction makes individuals lose track of time, ignore the surrounding environment and disrespect others, leading to unwittingly phubbing in social interaction (Vanden Abeele et al., 2016).

Euphoria is the last factors in phubbing behavior instrument, which consists of 2 items. This factors have a composite reliability of .813 and can explain 68.7% variation in factors shaping phubbing behavior. Euphoria is a feeling of comfort and excessive excitement when using or for the existence of a smartphone. This is a newly identified factors that was not previously included in the instrument used to measure phubbing behavior (Karadağ et al., 2015).

Factors shaping phubbing behavior from psychometric analysis and measurement models are more dominantly similar to the symptoms of smartphone addiction. The smartphone addiction indicators are contained in the obsession, compulsion, and euphoria factors. For example, in obsession, there are indicators of inability to resist playing with the smartphone endlessly, even without a purpose, and anxiety when not carrying a smartphone in the compulsion factors. These indicators are similar to the aspects of smartphone addiction proposed by Kwon et al. (2013).

The findings of this research are closely tied to the heterogeneity of the demographic data of respondent, particularly given the important role that adolescents in West Java play in shaping phubbing behavior. The respondents aged 15 to 21 years belong to the millennial generation when analyzed based on their birth year. According to Ali dan Purwandi (2017), the millennial generation include those born between 1981 and the 2000s and is characterized by increased use and familiarity with digital communication, media, and technology. The millennial generation is known for its integration of technology in all aspects of life, characterized by open communication and enthusiastic use of social media. Their daily lives are highly influenced by technological advancements,

and they tend to be more open to political and economic views (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak dan Badan Pusat Statistik, 2018). Attachment to technology, particularly smartphones, is a characteristic that becomes imprinted during period of adolescents and has lasting effects on physical and psychological well-being throughout life. Additionally, adolescence is a transitional period from childhood to adulthood that often involves negative experiences. Therefore, it is not surprising that excessive technology use can lead to various problems among adolescents, including addiction.

Hurlock (2003) stated that psychologically, adolescence is a period of seeking something deemed valuable, worthy of high esteem and admiration, as well as making trends or models as a new identity and lifestyle. Adolescents think that having a smartphone fulfills their needs, such as completing homework easily by finding answers on the internet and getting rid of boredom by playing games, listening to music, or messaging friends (Fajrin, 2013). This is in line with the respondents answers regarding the use or function of a smartphone, where 95% use a smartphone to access social media or entertainment (YouTube, watching movies, listening to music), 75% read and play online games, as well as 100% use search engines (Google, Yahoo, and others) and communicate.

The majority of respondents in this research were female (74.8%). According to Chóliz (2012), females tend to use smartphones for longer periods than males and have a higher likelihood of becoming addicted. This is because females use smartphones more frequently for social interaction, which in turn increases their overall usage frequency (van Deursen et al., 2015). Li et al. (2008) stated that there is gender-based differences in the adoption of new technology on the Internet, such as e-commerce. Males generally adapt more quickly to communication, information, and transaction processes than females. However, females tend to be more careful and thoughtful in accepting and managing information. This characteristic may shed light on the form of phubbing behavior, which tends to include more addictive symptoms.

Karadağ et al. (2015) and Chotpitayasunondh and Douglas (2016) revealed that smartphone addiction significantly ($p = .001$) affects phubbing behavior more in females than in males.

Apart from gender, the data on the frequency of smartphone use by respondents shows that the average time of use is >9 hours (38.58%). Although the duration of smartphone use is not a mandatory criterion for diagnosing smartphone addiction, previous research showed that online users who tend to experience addiction spend too much time, with some spending between 40 to 80 hours per week online (Greenfield, 2011). Kim et al. (2017) stated that someone using a smartphone for more than 6 hours a day is more likely to experience addiction. Initially, adolescents tend to use smartphones for 1-2 or 3-5 hours per day, but if they feel unsatisfied with the time spent, they may increase their usage duration, leading to addiction (Paramita & Hidayati, 2016). According to the theory of media system dependence, the more a person relies on media to satisfy their needs, the more significant the role of media becomes in their life and the greater its overall impact. (Paramita & Hidayati, 2016).

Withdrawal, compulsion, and euphoria are characteristic factors that shape phubbing behavior among adolescents in West Java, distinguishing it from phubbing behavior instrument developed by Karadağ et al. (2015) and other phubbing instruments formed through psychometric analysis and heterogeneous respondent data. These shaping factors are useful additions to phubbing behavior research. Additionally, the existence of the instrument product should facilitate scientific knowledge advancement about phubbing to improve understanding of how smartphone use affects social interaction and relationships in society.

This research has several limitations. Firstly, the sample used in the qualitative stage (theme exploration) appears to be less diverse. Therefore, it would be better if the sample were more diverse for the representative results to be obtained and used in instrument construction. Secondly, when constructing phubbing behavior instrument, it is difficult to distinguish between indicators shaping phubbing behavior and symptoms of smartphone addiction arising from the characteristics of the respondents.

## Conclusion

The findings of this research suggest that factors shaping phubbing behavior are closely related to the symptoms of smartphone addiction, particularly factors of obsession, compulsion, and euphoria. Factors that shape phubbing behavior in adolescents in West Java are influenced by age group involvement, gender, and smartphone use frequency. Notably, factors of withdrawal, compulsion, and euphoria are the distinguishing characteristics that shape phubbing behavior in adolescents in West Java, setting it apart from other phubbing behavior instruments developed by Karadağ et al. (2015) and other researchers. However, this research has some limitations, such as the less diverse sample in the qualitative stage and difficulty in distinguishing between indicators shaping phubbing behavior and symptoms of smartphone addiction. Despite these limitations, shaping factors of phubbing behavior identified in this research are valuable additions to the existing body of knowledge on phubbing behavior.

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