

Validity and Reliability of Instruments for Measuring Phubbing Behavior in High School and Equivalent Students

Awalya Siska Pratiwi^{1*}, Arbin Janu Setiyowati¹, Fariza Khalid²

¹Universitas Negeri Malang, Semarang St., No. 5 Malang, East Java, 65114, Indonesia

²Universiti Kebangsaan Malaysia, UKM Bangi, Selangor, 43600, Malaysia

*Corresponding author, email: awalya.siska.fip@um.ac.id

Article History

Received: 1 July 2024

Revised: 2 August 2024

Accepted: 4 August 2024

Keywords

Phubbing

Reliability

Senior high school

Validity

Abstract

These four causes of phubbing—smartphone addiction, internet addiction, social media addiction, and gaming addiction—are interconnected. The purpose of this article is to develop an instrument that counselors can use to determine the level of phubbing behavior among students in their school by testing its validity and reliability. The steps taken include: (1) determining aspects of the phubbing behavior scale, (2) formulating phubbing behavior scale indicators, (3) formulating phubbing behavior scale descriptors, (4) compiling phubbing behavior scale statement items, (5) testing validity, and (6) testing the reliability of the instrument. The 143 respondents consisted of students from several schools, including Maharani Pharmacy Vocational School Malang, National Vocational School Malang, State Senior High School 1 Gambiran, Widyagama High School Malang, Dr. Soetomo High School, and Vocational High School Darissulaimaniyyah. All respondent schools were located in East Java, Indonesia. After obtaining data from the students, it was analyzed using IBM SPSS Statistics 26 to test the validity and reliability of the phubbing behavior scale. The phubbing behavior scale indicators were derived from aspects such as communication disorders and obsession with cell phones. The scale, initially composed of 23 statement items, was found to have one invalid item, number 13, after testing. Thus, the remaining valid items totaled 22.

How to cite: Pratiwi, A. S., Setiyowati, A. J. & Khalid, F. (2024). Validity and Reliability of Instruments for Measuring Phubbing Behavior in High School and Equivalent Students. *Buletin Konseling Inovatif*, 4(2). 115–121. doi: 10.17977/um059v4i22024p115-121

1. Introduction

The era of the Industrial Revolution 4.0 has had a significant impact, particularly in the education sector, where rapidly evolving technology affects every aspect of life (Nastiti et al., 2020). The implementation of online learning systems has increased the frequency of gadget use by students, as these devices are essential learning tools. The most evident impact on society, including both adults and teenagers worldwide, is the rapid growth of social media and the internet (Syamsedin et al., 2020). In Indonesia, according to Indonesiamedia.com (2021), gadget users constituted 89% of the total population, including high school students. Adolescence is a period characterized by numerous changes, including moral, physical, cognitive, and emotional aspects (Yusuf, 2011). In this modern era, teenagers are inseparable from advanced communication devices, known as gadgets. Even during interactions, they often show more interest in their gadgets than in the people around them, a phenomenon termed "phubbing" (Amelia et al., 2019).

Phubbing, a term derived from "phone" and "snubbing," describes the behavior of ignoring someone in a conversation by paying excessive attention to a smartphone (Youarti & Hidayah, 2018). This phenomenon occurs when gadget use becomes overly frequent, leading to disrespectful behavior favoring phone use (Davey et al., 2018). If phubbing becomes habitual, especially in a school environment, it can impact various aspects of well-being. Physical health, mental health, and social well-being are some areas that can be disrupted by this behavior (Amelia et al., 2019). Research indicates that an increase in phubbing behavior can negatively affect communication within relationships (Chotpitayasunondh et al., 2018).

The causes of phubbing behavior include smartphone addiction, internet addiction, social media addiction, and game addiction. These causes are interconnected, as phone and internet addictions mutually reinforce each other (Karadag et al., 2015). It is crucial for teenagers to appreciate their

conversation partners during interactions and not to focus excessively on their phones. As teenagers spend most of their time on phones and personal computers, the reliance on technology brings accompanying risks (Deep & Gochhait, 2023). It is common to see teenagers consciously using their phones in restaurants, on the streets, or at schools, often more interested in phone notifications than in-person conversations. Phubbing behavior is a significant concern, especially for school counselors. Therefore, developing an instrument to assess the level of phubbing behavior among students is necessary.

The phubbing behavior scale is presented as a questionnaire using a Likert scale. The quality and accuracy of this instrument can be tested through validity and reliability assessments (Rosita et al., 2021). Testing the developed questionnaire scale's validity and reliability is essential, and this research utilizes SPSS software version 26 for this purpose. Reliability testing employs the Cronbach Alpha test, suitable for instruments with multiple correct answers, such as essays, questionnaires, and surveys (Riskijah, 2020). This research focuses on the results of the validity and reliability tests of the developed scale.

2. Method

The development process of the phubbing behavior scale involved several key steps: (1) determining the aspects of the phubbing behavior scale, (2) formulating the indicators, (3) creating the descriptors, (4) drafting the statements, (5) testing the validity, and (6) testing the reliability of the instrument. These steps were meticulously followed to produce a standardized instrument. Consequently, the resulting phubbing behavior scale is expected to be reliable for data collection, with the collected data being unquestionably valid.

Data was collected by distributing the developed phubbing behavior scale via Google Forms, with the assistance of school counselors, and a total of 143 high school respondents participated. The use of Google Forms reduced workload and increased the efficiency and accuracy of data collection (Hallur, 2016). These respondents came from several schools, including: Vocational High School Farmasi Maharani Malang, Vocational High School Nasional Malang, State Senior High School 1 Gambiran, Senior High School Widyagama Malang, Senior High School Dr. Soetomo, and Vocational Hicg School Darissulaimaniyyah. After collecting the data from the respondents, it was analyzed using IBM SPSS Statistics 26 to test the validity and reliability of the phubbing behavior scale.

3. Results and Discussion

3.1. Aspects of Phubbing Behavior

Karadag (2015) explains that there are two aspects of phubbing behavior identified in the research:

3.1.1. Communication Disturbance

The presence of smartphones disrupts face-to-face communication. The three components of communication disturbance are making calls, frequently checking social media notifications, and replying to messages on the smartphone. This behavior disrupts interpersonal relationships and violates the ethics of face-to-face communication (Constantin & Setijadi, 2023). Other research has shown that phubbing mediates the relationship between cell phone obsession and various forms of social connectedness, including connections to family, school, and self, potentially leading to social disconnection (Ang et al., 2019).

3.1.2. Phone Obsession

A strong urge to use a smartphone, even during face-to-face communication, leads to obsession. The three components of phone obsession include excessive attachment to one's phone, feeling anxious when away from the smartphone, and difficulty regulating smartphone use. From the above explanation, two aspects underlie the emergence of phubbing behavior: communication disturbance, which involves preferring to chat via a smartphone rather than communicating face-to-face, and phone obsession, which involves prioritizing a smartphone over face-to-face interactions. Phubbing, the act of ignoring others by focusing on one's cell phone, has emerged as a significant communication problem in modern society. Research shows that phubbing negatively impacts social connected-

ness, relationship satisfaction, and mental health (Ang et al., 2019; Chmielik & Błachnio, 2021). It has been found that communication disorders mediate the relationship between neuroticism and life satisfaction (Çıkırıkçı et al., 2022), as well as between phone obsession and various forms of social connectedness (Ang et al., 2019).

3.2. Indicators of Phubbing Behavior

The indicators of phubbing behavior used as guidelines for the instrument are derived from the aspects of phubbing behavior proposed by Karadag (2015). After determining the appropriate indicators to create the phubbing behavior scale, the next step is to identify the descriptors corresponding to these indicators. The first indicator is taken from the aspect of communication disturbance. The appropriate descriptors for the first indicator are: (1) making telephone calls when communicating with others; (2) sending and replying to messages during communication; and (3) checking social media notifications on the cellphone. For the second indicator, phone obsession, the descriptors are: (1) closeness to cell phones; (2) anxiety when away from the cell phone; and (3) difficulty regulating cell phone use in daily life. After determining the indicators and descriptors for developing the phubbing behavior scale, the next step is to develop the statement items. These statement items will be composed of both favorable and unfavorable statements.

3.3. Statement Items for the Phubbing Behavior Scale

The indicators for the phubbing behavior scale to be developed are based on the aspects proposed by Karadag (2015), namely communication disturbance and phone obsession. This instrument is adapted from Fauzan (2018). For a more detailed explanation of the developed statement items, they will be outlined in the Table 1.

Table 1. Instrument Grid for Phubbing Behavior

Indicator	Descriptor	Favorable Statement Items	Unfavorable Statement Items
Communication disturbance	Making Phone Calls While Communicating with Others	Notifications on my phone screen are more attention-grabbing than talking to friends around me (5)	I turn off my phone when class begins (8)
		I will immediately answer incoming calls even if I am talking about something important with someone else (15)	I will reject incoming calls when I am talking to someone else (11)
			I will ask for permission from the person I am talking to when my phone rings, to take the call (21)
	Sending and Replying to Messages While Communicating with Others	When talking with friends, I like to send and reply to incoming messages on my phone (7)	I ignore messages or calls on my phone when communicating with others (4)
		I will interrupt the conversation and check for the appropriate response to incoming messages on phone notifications (19)	
	Checking Social Media Notifications on the Phone	When gathering with friends, I'm more interested in checking if there are incoming notifications on my phone (2)	I will ignore notifications on my phone when talking to someone else (12)
When talking to someone else, I always check notifications on my phone (16)		When talking to someone else, focusing on eye contact is more important than constantly checking notifications on my phone (22)	
Phone obsession	Attachment to the Phone	The first thing I do when I wake up is check my phone. (1)	I put my phone out of my reach (13)
		If I forget to bring my phone, I will go back home to get it (9)	
		I have difficulty detaching myself from my phone (20)	
	Anxiety When Away from the Phone	I feel anxious and restless when I am away from my phone (3)	I panic if I forget my wallet rather than not bringing my phone when leaving home (10)
		I worry about missing something important if I don't check my phone (17)	
	Regulating Phone Usage in Daily Life	The intensity of my phone usage increases day by day (6)	When studying, I focus by turning off my phone (18)
	Time for social activities, personal time, and other things is neglected because of frequent phone use (14)		
	I find it difficult to regulate my phone usage (23)		

Table 1 formulates the statement items based on indicators and descriptors, used to construct the phubbing behavior scale instrument. This instrument, which will be distributed to high school students, utilizes a Likert scale for measurement. The Likert scale is chosen for its suitability in measuring various aspects of social phenomena (Sugiyono, 2016). In this study, the Likert scale has been modified to prevent respondents from choosing a neutral option, thereby ensuring more decisive responses. Each statement includes several response options, with each response option assigned a score presented in Table 2.

Table 2. Scoring Guide for Phubbing Behavior Inventory

Statement	Strongly Agree (SS)	Agree (S)	Disagree (TS)	Strongly Disagree (STS)
Favorable	1	2	3	4
Unfavorable	4	3	2	1

3.4. Validity Testing and Reliability Testing

Validity and reliability are crucial aspects of measurement instruments in research. Validity refers to how well an instrument measures what it intends to measure, while reliability concerns the consistency and stability of measurements (Mohajan, 2017; Souza et al., 2017). Validity indicates the level of accuracy or error in an instrument. Validity calculations are performed using SPSS version 26. Meanwhile, reliability is reflected in the measurement results, where high reliability indicates that the data produced are trustworthy. The central concept in reliability is the trustworthiness of the measurement results (Azwar, 2010). Cronbach's Alpha will be used to measure reliability, as the instrument developed is in the form of a questionnaire. Exploratory Factor Analysis and Cronbach's Alpha are commonly used techniques for this purpose (Ghazali, 2016; Gunawan & Sari, 2019).

To assess the validity of the instrument, SPSS software is used. The decision rule for validity testing is based on the significance value: if it is less than 0.05, the item is considered valid; if it is greater than 0.05, the item is considered not valid. To determine the critical t-value (t-table), degrees of freedom (df) are calculated as the sample size minus 2, using the formula ($df = N - 2$). Therefore, for a sample size of 143, $df = 143 - 2 = 141$. Checking the t-table at a 5% significance level gives a critical t-value of 0.1642.

The results of the validity test show that the phubbing behavior scale has good validity. Specifically, the validity test results show that the phubbing behavior scale has an r-value greater than the r-table value. When the calculated r-value exceeds the corresponding r-table value, it indicates statistical significance, supporting the validity of the instrument or measurement in question (OpenStax, 2018). The r-table value for the instrument is 0.1642. Therefore, out of the 23 items in the phubbing behavior scale instrument, one statement item (item number 13) is considered not valid (see Table 3). This is because the r-value for item 13 is smaller than the r-table value, specifically $0.131 < 0.1642$, and does not meet the validity test criteria. The non-valid item is removed from the instrument, leaving 22 valid items.

Table 3. Instrument Validation Results

No item	Pearson Correlation Reliabel	r table	Status
1	.340	0.1642	valid
2	.413	0.1642	valid
3	.486	0.1642	valid
4	.203	0.1642	valid
5	.523	0.1642	valid
6	.514	0.1642	valid
7	.541	0.1642	valid
8	.197	0.1642	valid
9	.275	0.1642	valid
10	.204	0.1642	valid
11	.363	0.1642	valid
12	.434	0.1642	valid
13	.131	0.1642	invalid
14	.461	0.1642	valid
15	.503	0.1642	valid
16	.603	0.1642	valid
17	.520	0.1642	valid
18	.215	0.1642	valid
19	.344	0.1642	valid

No item	Pearson Correlation Reliabel	r table	Status
20	.613	0.1642	valid
21	.287	0.1642	valid
22	.271	0.1642	valid
23	.497	0.1642	valid

Reliability refers to an instrument that is deemed sufficiently trustworthy as a data collection tool because it consistently produces accurate results (Arikunto, 2013). Item reliability testing uses Cronbach's alpha formula with the help of SPSS. A reliability value of 0.6 indicates low reliability, 0.7 indicates moderate reliability, and above 0.8 indicates high reliability (Priyatno, 2012). Interpretations from experts vary regarding the reliability coefficient. Some opinions consider values as low as 0.40 to support reliability (Post, 2016), while others argue that coefficients below 0.70 indicate unreliability (Post, 2016; Kılıç, 2016). A reliability value is considered good if the coefficient is 0.70 or higher, while a value above 0.90 can indicate redundancy (Kılıç, 2016). Based on the results of the validity and reliability test, the Cronbach's Alpha results were 0.790 with the interpretation being at medium reliability. From the reliability test results in SPSS, phubbing behavior scale has demonstrated moderate reliability. Following the validity and reliability testing, the results is presented on Table 4 and Table 5.

Table 4. Item Results After SPSS Validity and Reliability Test (English)

No	Statement
1	The first thing I do when I wake up is check my phone.
2	When gathering with friends, I'm more interested in checking if there are incoming notifications on my phone
3	I feel anxious and restless when I am away from my phone
4	I ignore messages or calls on my phone when communicating with others
5	Notifications on my phone screen are more attention grabbing than talking to friends around me
6	The intensity of my phone usage increases day by day
7	When talking with friends, I like to send and reply to incoming messages on my phone
8	I turn off my phone when class begins
9	If I forget to bring my phone, I will go back home to get it
10	I panic if I forget my wallet rather than not bringing my phone when leaving home
11	I will reject incoming calls when I am talking to someone else
12	I will ignore notifications on my phone when talking to someone else
13	Time for social activities, personal time, and other things is neglected because of frequent phone use
14	I will immediately answer incoming calls even if I am talking about something important with someone else
15	When talking to someone else, I always check notifications on my phone
16	I worry about missing something important if I don't check my phone
17	When studying, I focus by turning off my phone
18	I will interrupt the conversation and check for the appropriate response to incoming messages on phone notifications
19	I have difficulty detaching myself from my phone
20	I will ask for permission from the person I am talking to when my phone rings, to take the call
21	When talking to someone else, focusing on eye contact is more important than constantly checking notifications on my phone
22	I find it difficult to regulate my phone usage

Table 5. Item Results After SPSS Validity and Reliability Test (Indonesian)

No	Statement
1	<i>Hal yang saya lakukan ketika saya bangun tidur adalah mengecek ponsel</i>
2	<i>Saat sedang berkumpul bersama teman, saya lebih tertarik untuk mengecek apakah ada notifikasi yang masuk atau tidak pada ponsel saya</i>
3	<i>Saya merasa cemas dan gelisah ketika saya jauh dari ponsel</i>
4	<i>Mengabaikan pesan atau panggilan masuk di ponsel saya ketika sedang berkomunikasi dengan orang lain</i>
5	<i>Notifikasi dari layar ponsel lebih menarik perhatian saya daripada berbicara dengan teman disekitar</i>
6	<i>Intensitas penggunaan ponsel saya meningkat dari hari ke hari</i>
7	<i>Ketika sedang berbicara dengan teman, saya suka mengirim dan membalas pesan masuk di ponsel</i>
8	<i>Saya menonaktifkan ponsel ketika pelajaran dimulai dalam kelas</i>
9	<i>Apabila saya lupa membawa ponsel, saya akan kembali pulang untuk mengambilnya</i>
10	<i>Saya panik jika tidak membawa dompet daripada tidak membawa ponsel saat keluar rumah</i>
11	<i>Saya akan menolak panggilan yang masuk ketika sedang berbicara dengan orang lain</i>
12	<i>Saya akan mengabaikan notifikasi pada ponsel ketika sedang berbicara dengan orang lain</i>
13	<i>Waktu untuk kegiatan sosial, pribadi dan hal lainnya menjadi terabaikan karena terlalu sering menggunakan ponsel</i>
14	<i>Saya akan segera menjawab panggilan yang masuk walaupun sedang berbicara hal penting bersama orang lain</i>
15	<i>Saat sedang berbicara dengan orang lain, saya selalu cek notifikasi dari ponsel saya</i>
16	<i>Saya khawatir akan melewatkan suatu hal penting jika tidak memeriksa ponsel</i>
17	<i>Ketika sedang belajar, saya fokus belajar dengan mematikan ponsel</i>

No	Statement
18	<i>Saya akan memotong pembicaraan dan menanyakan balasan yang tepat untuk pesan yang masuk pada notifikasi ponsel</i>
19	<i>Saya kesulitan melepaskan diri dari ponsel</i>
20	<i>Saya akan meminta izin dengan lawan bicara saya, saat ponsel saya berdering untuk menerima panggilan tersebut</i>
21	<i>Saat berbicara dengan orang lain, hal yang penting adalah memperhatikan kontak matanya daripada sibuk mengecek notifikasi pada ponsel</i>
22	<i>Saya sulit untuk mengatur penggunaan ponsel</i>

The quality of the instruments developed significantly impacts research results, particularly in health and social sciences where abstract concepts are often studied (Kimberlin & Winterstein, 2008). Factors influencing validity and reliability include the subject being measured, the instrument user, and the instrument itself (Yusup, 2018). Therefore, it is crucial to thoroughly evaluate these properties before using any instrument in research to ensure the quality and accuracy of the results (Souza et al., 2017; Yusup, 2018).

4. Conclusion

The steps taken to develop the Phubbing Behavior Scale include: (1) determining aspects of phubbing behavior, (2) formulating indicators of phubbing behavior, (3) developing descriptors for the scale, (4) composing statements for the scale, (5) testing validity, and (6) testing reliability. Indicators for the Phubbing Behavior Scale are derived from aspects such as communication disturbance and phone obsession. The scale originally consisted of 23 statement items; however, after validity and reliability testing, item no. 13 was found invalid. Thus, the remaining valid items total 22. The instrument's reliability result is 0.790, which is categorized as moderate reliability. Future researchers are advised to expand the research sample to further validate this Phubbing Behavior inventory.

Author Contributions

All authors have equal contributions to the paper. All the authors have read and approved the final manuscript.

Funding

No funding support was received.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

- Amelia, T., Despitassari, M., Sari, K., Putri, D. S. K., Oktamianti, P., & Agustina, A. (2019). Phubbing, Penyebab dan Dampaknya pada Mahasiswa Fakultas Kesehatan Masyarakat, Universitas Indonesia. *Jurnal Ekologi Kesehatan*, 18(2), 122–134.
- Ang, C. S., Teo, K. M., Ong, Y. L., & Siak, S. L. (2019). Investigation of a Preliminary Mixed Method of Phubbing and Social Connectedness in Adolescents. *Addiction & health*, 11(1), 1–10. <https://doi.org/10.22122/ahj.v11i1.539>
- Arikunto, S. (2013). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Azwar, S. (2010). *Metode Penelitian*. Yogyakarta: Pustaka Pelajar.
- Chmielik, M. M., & Blachnio, A. (2021). Till phone do us part: The role of phubbing in relationship satisfaction and self-esteem. *Journal for Perspectives of Economic Political and Social Integration*, 27(2), 91–112. <https://doi.org/10.18290/pepsi-2021-0009>
- Chotpitayasunondh, V., & Douglas, K. M. (2016). How “phubbing” becomes the norm: The antecedents and consequences of snubbing via ponsel. *Computers in Human Behavior*, 63, 9–18. <https://doi.org/10.1016/j.chb.2016.05.018>
- Chotpitayasunondh, V., & Douglas, K. M. (2018). The effects of “phubbing” on social interaction. *Journal of Applied Social Psychology*, 48(6), 304–316. <https://doi.org/10.1111/jasp.12506>
- Chotpitayasunondh, V., & Douglas, K. M. (2018). Measuring phone snubbing behavior: Development and validation of the Generic Scale of Phubbing (GSP) and the Generic Scale of Being Phubbed (GSBP). *Computers in human behavior*, 88, 5–17. <https://doi.org/10.1016/j.chb.2018.06.020>

- Çıkrıkçı, Ö., Griffiths, M.D., & Erzen, E. (2022). Testing the Mediating Role of Phubbing in the Relationship Between the Big Five Personality Traits and Satisfaction with Life. *International Journal of Mental Health and Addiction*, 20, 44–56. <https://doi.org/10.1007/s11469-019-00115-z>
- Constantin, N., & Setijadi, N. (2023). Phubbing, Komunikasi Interpersonal, dan Etika Komunikasi dalam Masyarakat. *Jurnal Lensa Mutiara Komunikasi*, 7(2), 205–214. <https://doi.org/10.51544/jlmk.v7i2.4648>
- Davey, S., Davey, A., Raghav, S. K., Singh, J. V., Singh, N., Blachnio, A., & Przepiórkaa, A. (2018). Predictors and consequences of "Phubbing" among adolescents and youth in India: An impact evaluation study. *Journal of family & community medicine*, 25(1), 35–42. https://doi.org/10.4103/jfcm.JFCM_71_17
- Deep, A., & Gochhait, S. (2023, March). Security In Smartphone: A Comparison of Viruses and Security Breaches in Phones and Computers. In *2023 International Conference on Innovative Data Communication Technologies and Application (ICIDCA)* (pp. 746–751). IEEE. <https://doi.org/10.1109/ICIDCA56705.2023.10100128>
- Fauzan, A. (2018). *Analisis psikometrik instrumen phubbing dan faktor-faktor yang mempengaruhinya*. Jakarta: Fakultas Psikologi UIN Syarif Hidayatullah.
- Ghazali, N. H. M. (2016). A Reliability and Validity of an Instrument to Evaluate the School-Based Assessment System: A Pilot Study. *International journal of evaluation and research in education*, 5(2), 148–157. <https://doi.org/10.11591/ijere.v5i2.4533>
- Gunawan, I., & Sari, D. N. (2019, December). Validity and reliability of character education Internalization instruments. In *The 4th International Conference on Education and Management (COEMA 2019)* (pp. 245–249). Atlantis Press. <https://doi.org/10.2991/coema-19.2019.50>
- Hallur, R. (2016). Google forms that made teacher's life easier: An experience and experimentation. *Journal of Engineering Education Transformations*, 30(Special Issue).
- Hanika, I. M. (2015). Fenomena phubbing di era milenia (ketergantungan seseorang pada ponsel terhadap lingkungannya). *Interaksi: Jurnal Ilmu Komunikasi*, 4(1), 42–51. <https://doi.org/10.14710/interaksi.4.1.42-51>
- Hanum, Z. (2021). *Kemenkominfo: 89% Penduduk Indonesia Gunakan Smartphone* (online), <https://mediaindonesia.com/humaniora/389057/kemenkominfo-89-penduduk-indonesia-gunakan-smartphone>. Diakses 18 Februari 2022
- Karadag, E., Tosuntas, S. B., Erzen, E., Duru, P., Bostan, N., Sahin, B. M., & Babadag, B. (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. *Journal of Behavioral Addictions*, 4(2), 60–74. <https://doi.org/10.1556/2006.4.2015.005>
- Kılıç, S. (2016). Cronbach's alpha reliability coefficient -. *Journal of Mood Disorders*, 6, 47.
- Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American journal of health-system pharmacy*, 65(23), 2276–2284.
- Mohajan, H. K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spiru Haret University. Economic Series*, 17(4), 59–82. <https://doi.org/10.26458/1746>
- Nastiti, F. E., & Abdu, A. R. N. (2020). Kajian: Kesiapan pendidikan Indonesia Menghadapi Era Society 5.0. *Edcomtech*, 5(1), 61–66. <https://doi.org/10.17977/um039v5i12020p061>
- OpenStax, B.I. (2018). Testing the Significance of the Correlation Coefficient.
- Post M. W. (2016). What to Do With "Moderate" Reliability and Validity Coefficients?. *Archives of physical medicine and rehabilitation*, 97(7), 1051–1052. <https://doi.org/10.1016/j.apmr.2016.04.001>
- Priyatno, D. (2012). *Cara Kilat Belajar Analisis Data dengan SPSS 20*. Yogyakarta: Andi.
- Riskijah, S. S. (2020). Influence Of Internal Labor Factors On Work Accidents Of XX Toll Road Construction Project. *Jurnal Prokons*, 14(2), 103–109.
- Rosita, E., Hidayat, W., & Yuliani, W. (2021). Uji validitas dan reliabilitas kuesioner perilaku prososial. *FOKUS (Kajian Bimbingan & Konseling dalam Pendidikan)*, 4(4), 279–284. <https://doi.org/10.22460/fokus.v4i4.7413>
- Souza, A. C., Alexandre, N. M. C., & Guirardello, E. B. (2017). Psychometric properties in instruments evaluation of reliability and validity. *Propriedades psicométricas na avaliação de instrumentos: avaliação da confiabilidade e da validade. Epidemiologia e serviços de saúde : revista do Sistema Unico de Saúde do Brasil*, 26(3), 649–659. <https://doi.org/10.5123/S1679-49742017000300022>
- Sugiyono. (2016). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R & D*. Bandung: Alfabeta.
- Syamsoedin, W. K. P., Bidjuni, H., & Wowiling, F. (2015). Hubungan Durasi Penggunaan Media Sosial Dengan Kejadian Insomnia Pada Remaja di SMA Negeri 9 Manado. *Jurnal Keperawatan*, 3(1). <https://doi.org/10.35790/jkp.v3i1.6691>
- Youarti, I. E., & Hidayah, N. (2018). Perilaku phubbing sebagai karakter remaja generasi Z. *Jurnal Fokus Konseling*, 4(1), 143–152. <https://doi.org/10.52657/jfk.v4i1.553>
- Yusuf, S. (2011). *Psikologi Perkembangan Anak dan Remaja*. Bandung : PT Remaja Rosdakarya.
- Yusup, F. (2018). Uji validitas dan reliabilitas instrumen penelitian kuantitatif. *Tarbiyah: Jurnal Ilmiah Kependidikan*, 7(1). <https://doi.org/10.18592/tarbiyah.v7i1.2100>