Indonesia Problematic Internet Use Scale

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Abstract. Problematic Internet Use (PIU) is considered not to have consensus related to theory and assessment to date. The Indonesia Problematic Internet Use (IPIUS) is an instrument developed based on the Davis PIU concept and the modification of the GPIUS2 Caplan instrument. IPIUS consists of 63 items with 6 dimensions, namely Preference of Online Social Interaction (POSI), escaping, cognitive preoccupation, compulsive internet use, negative outcomes, and emotional reactivity. The emotional reactivity dimension is deemed necessary in IPIUS to consider the emotional problems that arise in internet use in Indonesia. The CFA test results indicate that IPIUS is a valid model and fit well with the data and it is valid to be applied for further research.

1. Introduction

Internet usage is increasingly prevalent around the world, including Indonesia, makes a lot of researches are now revolves around this issue. According to Davis [1], Problematic Internet Use (PIU) is a consequence of a person's psychopathological problems (such as loneliness, anxiety, or depression) so as to bring about cognitive and maladaptive behaviors in the use of the internet. These individuals will be easily trapped in excessive internet use to calm the mood or overcome the turmoil they felt [2].

Based on the search and knowledge of the authors, it is known that until now there has been no consensus on the theoretical concepts of PIU [3]. This has consequences for the number of studies related to PIU measurement tools. Some PIU measurement tools that have been developed and are quite widely used include the Online Cognitive Scale [1]; Generalized Problematic Internet Use Scale [2] and Generalized Problematic Internet Use Scale 2 [4]; Problematic Internet Use Questionnaire [5]; Internet Addiction Test from Young [6], [7], but until now no one has measured PIU specifically for Indonesians.

This paper aims to prove that the Indonesian Problematic Internet Use Scale (IPIUS) is a valid measurement tool and applicable in research. The Problematic Indonesia Internet Use Scale is compiled based on the PIU theory of Davis [1] and the dimensions in this instrument are adapted from GPIUS2 [4].

2. Indonesia Problematic Internet Use Scale

PIU is a cognitive and behavioral maladaptive syndrome that involves the use of the internet and has negative consequences on the professional, social, and academic areas [2], [8]. Individuals who have maladaptive cognitive conditions are a potential cause of PIU [1], [9]. Maladaptive cognition is a chaotic mind for oneself and also for the world so that the individual concerned only believes in the internet [1].
As a result, there is maladaptive behavior that is in the form of excessive internet use, namely not only the amount of time spent in quantity but also the feeling that the individual has spent a lot of time on internet use that is not intended [10].

Paralleled to the PIU according to Davis that uses the principle of the interaction of diathesis-stress [1], IPIUS also uses the same concept. Psychopathological conditions that have been owned by someone coupled with the experience that causes stress, resulting in someone using the internet excessively both generalized problematic internet use (such as browsing, chatting, social media use), as well as specific problematic internet use (such as online gambling, online games, pornography online). From these conditions, the PIU is a continuum ranging from healthy internet use to pathological internet use [11].

The PIU model from Caplan [4] is an interesting and relevant PIU model applied to internet users in Indonesia [12]–[14]. Modification of symptoms of PIU from Caplan’s model needs to be done because it is considered incomplete to explain the PIU among Indonesians. The Caplan’s model [4] does contain the cognitive and behavioral aspects of internet use and give impact of cognitive and maladaptive behaviors in using the internet. It’s just that the emotional factors that help shape a person’s cognitive and behavioral response to using the internet have not yet appeared in the Caplan’s model. In the Indonesian PIU model compiled by authors, several symptoms of PIU from Caplan [4] were maintained such as Preference for Online Social Interaction (POSI), cognitive preoccupation, compulsive internet use, and negative outcomes. The authors added that the emotional reactivity aspect and modifying mood regulation became a form of escaping.

2.1. Preference for Online Social Interaction (POSI)

POSI is a relevant symptom to be included in the IPIUS instrument because the number of internet users in Indonesia is only for access to social media, which means prioritizing interaction with other people online rather than offline. Individuals who experience psychological problems such as loneliness, have limitations in interpersonal relationships [15], therefore they need safe and comfortable means such as the internet to interact with others [16], [17]. Loneliness is a predictor of PIU [2], [12], it means that people with loneliness would prefer to interact online rather than offline [4].

2.2. Escaping

Escaping is a modification of mood regulation in the PIU Caplan’s model [4]. The authors assumed that PIU is a psychological disorder in a person, so the symptoms that make up the PIU construct should be a symptom that reflects the problems experienced by a person related to their internet usage. Mood regulation reflects a positive condition rather than reflecting negative things. Escaping adopted the existing definition as in Caplan [4] that individuals use the internet with the motivation to comfort themselves due to existing psychopathological conditions such as loneliness, anxiety, and so on. The term means of escape is also in line with diminished impulse control in the Online Cognitive Scale [8] that someone with certain psychological conditions will have a low quality of self-control. Example of items in IPUS: "When I was feeling upset, I ventured into online activities to feel better", "I have more access to social media sites and other entertainment sites to avoid tasks that should be done".

2.3. Cognitive Preoccupation and Compulsive Internet Use

Cognitive Preoccupation and Compulsive Internet Use in the PIU Caplan’s model [4] are the two subscales that become as deficient self-regulation which indicates that due to the preference to interact online or the motivation to use the internet to make someone feel comfortable, the problem arises related to self-regulation. In parallel with Davis [1] and Caplan [4] that the problems of internet use also involves maladaptive cognitive and maladaptive behavior in one’s internet usage. Cognitive preoccupation can be seen from individuals who only believe in the internet due to cognitive maladaptive in self-assessment [1] or the existence of thoughts that are obsessed only on the internet, such as "When I am offline, I am still thinking about going online". Compulsive internet use is the use of the internet that is repetitive and without purpose so that maladaptive behaviour appears related to its inability to control itself [2], such as "I do a lot of online activities for long or endless".
2.4. Negative Outcomes and Emotional Reactivity

Caplan [4] stated that the symptoms of negative outcomes illustrate the negative impact of maladaptive internet use on the overall aspiration of one's life. Understanding of negative outcomes like this is considered not entirely right because the internet has become a part of a person's life that cannot be separated, not like an addiction that must be discarded. When a person experiences problems from maladaptive internet use, it could be that only a certain part of the person's life is problematic. The authors still use the concept of negative outcomes in IPIUS but separate items that show problems from the internet in personal life (example: "I was involved in misunderstanding with online friends due to certain posts on social media"), and professional life (example: "My tasks are not optimal because of too many online activities that entertaining me").

Another negative impact that stated in IPIUS and is considered to be a sign of someone experiencing PIU is the presence of emotional reactivity. Based on studies that have been conducted, one of the emotional factors that can predict PIU is emotional reactivity [14]. Emotional reactivity is a condition where a person experiences certain emotions as a form of response to stimuli (emotional sensitivity), strong emotional feelings (emotion intensity), and the persistence of emotional reactivity within a certain period before finally returning to the initial level of anxiety (emotion persistence) [18]. The concept of emotional reactivity is based on the presence of emotional disclosure [19] and the emergence of emotional reactivity in interpersonal interactions [20]. The emergence of diverse emotional reactivity shows the differences in the individual's emotional regulation [21] and issues in the regulation of emotions [18]. Emotional reactivity can lead to psychopathological problems [22] that it can interfere with mental health. Items on emotional reactivity from IPIUS like "I feel the emotional content on social media is aimed at me", "When I read online news with negative nuances, I feel very angry".

3. Method

3.1. Participants

Participants in this study were 1959 undergraduate students consisting of female (53.8%), male (33%), and 13.2% did not provide information about gender. The age range is between 15-29 years (M = 19.14; SD = 1.305). The participants were taken from 7 cities (Jakarta, Bandung, Semarang, Yogyakarta, Surabaya, Palembang, and Makassar) in 3 regions in Indonesia (Java, Sumatera, and Sulawesi), and from 12 universities.

3.2. Instruments

The Indonesia Problematic Internet Use Scale (IPIUS) consists of 63 items with 8 Likert scales, from 1 that really not describe myself to 8 that very much depicting myself. The construct reliability in this measuring instrument is 0.916, then each dimension has a construct reliability of 0.965 (POSI), 0.863 (Escaping), 0.926 (Cognitive Preoccupation), 0.879 (Compulsive Internet Use), 0.879 (Negative Outcomes), and 0.908 (Emotional Reactivity).

3.3. Procedure

Data collection is carried out in the first and second year student class by first obtaining permission to collect data from the head of the study program or the lecturer concerned. Participants are asked to fill in all the items available by first giving instructions on how to fill in. After completing the IPIUS, participants are given an appreciation token by the researchers.

3.4. Analysis

The collected data were analysed using confirmatory factor analysis (CFA) data analysis techniques to determine whether the measuring instrument model was fit with the data.

4. Results

Significance item test results on IPUS are shown in table 1.
| Observed | Latent | SLF | SE  | t-value | p-value | Significant |
|----------|--------|-----|-----|---------|---------|--------------|
| I1       | POSI   | 0.568 | 0.015 | 38.586 | 0.000   | S            |
| I8       | POSI   | 0.641 | 0.013 | 48.446 | 0.000   | S            |
| I15      | POSI   | 0.635 | 0.013 | 48.431 | 0.000   | S            |
| I22      | POSI   | 0.594 | 0.014 | 42.617 | 0.000   | S            |
| I29      | POSI   | 0.665 | 0.012 | 53.999 | 0.000   | S            |
| I35      | POSI   | 0.587 | 0.014 | 40.95  | 0.000   | S            |
| I42      | POSI   | 0.673 | 0.015 | 44.056 | 0.000   | S            |
| I49      | POSI   | 0.574 | 0.016 | 36.372 | 0.000   | S            |
| I56      | POSI   | 0.632 | 0.014 | 45.665 | 0.000   | S            |
| I60      | POSI   | 0.701 | 0.011 | 61.789 | 0.000   | S            |
| I12      | POSI   | 0.794 | 0.009 | 86.272 | 0.000   | S            |
| I16      | POSI   | 0.691 | 0.012 | 55.391 | 0.000   | S            |
| I30      | POSI   | 0.706 | 0.012 | 59.443 | 0.000   | S            |
| I23      | POSI   | 0.779 | 0.01  | 79.307 | 0.000   | S            |
| I26      | CP     | 0.746 | 0.014 | 51.786 | 0.000   | S            |
| I31      | ESCP   | 0.698 | 0.013 | 55.369 | 0.000   | S            |
| I37      | ESCP   | 0.741 | 0.013 | 57.636 | 0.000   | S            |
| I44      | ESCP   | 0.853 | 0.011 | 74.489 | 0.000   | S            |
| I50      | ESCP   | 0.39  | 0.019 | 20.664 | 0.000   | S            |
| I57      | ESCP   | 0.372 | 0.019 | 20.087 | 0.000   | S            |
| I61      | ESCP   | 0.412 | 0.018 | 22.71  | 0.000   | S            |
| I4       | CP     | 0.619 | 0.015 | 41.077 | 0.000   | S            |
| I11      | CP     | 0.635 | 0.014 | 45.309 | 0.000   | S            |
| I18      | CP     | 0.735 | 0.011 | 66.042 | 0.000   | S            |
| I25      | CP     | 0.742 | 0.011 | 65.5   | 0.000   | S            |
| I32      | CP     | 0.829 | 0.009 | 92.309 | 0.000   | S            |
| I38      | CP     | 0.686 | 0.013 | 54.407 | 0.000   | S            |
| I45      | CP     | 0.709 | 0.012 | 56.873 | 0.000   | S            |
| I51      | CP     | 0.584 | 0.016 | 37.25  | 0.000   | S            |
| I5       | CIU    | 0.352 | 0.02  | 17.567 | 0.000   | S            |
| I12      | CIU    | 0.441 | 0.018 | 24.686 | 0.000   | S            |
| I19      | CIU    | 0.314 | 0.02  | 15.852 | 0.000   | S            |
| I26      | CIU    | 0.537 | 0.016 | 33.23  | 0.000   | S            |
| I33      | CIU    | 0.521 | 0.018 | 29.194 | 0.000   | S            |
| I39      | CIU    | 0.877 | 0.01  | 90.766 | 0.000   | S            |
| I46      | CIU    | 0.755 | 0.011 | 65.718 | 0.000   | S            |
| I52      | CIU    | 0.663 | 0.014 | 47.299 | 0.000   | S            |
| I58      | CIU    | 0.615 | 0.014 | 42.495 | 0.000   | S            |
| I62      | CIU    | 0.55  | 0.018 | 30.48  | 0.000   | S            |
| I6       | NO     | 0.322 | 0.02  | 16.407 | 0.000   | S            |
| I13      | NO     | 0.277 | 0.021 | 13.124 | 0.000   | S            |
| I20      | NO     | 0.292 | 0.02  | 14.396 | 0.000   | S            |
| I27      | NO     | 0.405 | 0.019 | 21.664 | 0.000   | S            |
| I34      | NO     | 0.861 | 0.007 | 128.849| 0.000   | S            |
| I40      | NO     | 0.866 | 0.006 | 143.75 | 0.000   | S            |
| I47      | NO     | 0.884 | 0.007 | 135.523| 0.000   | S            |
| I53      | NO     | 0.899 | 0.006 | 158.385| 0.000   | S            |
| I7       | ER     | 0.369 | 0.021 | 17.872 | 0.000   | S            |
| Observed | Latent | SLF   | SE   | t-value | p-value | Significant |
|----------|--------|-------|------|---------|---------|-------------|
| I14      | ER     | 0.624 | 0.018| 34.961  | 0.000   | S           |
| I21      | ER     | 0.609 | 0.02 | 30.594  | 0.000   | S           |
| I28      | ER     | 0.399 | 0.02 | 19.657  | 0.000   | S           |
| I41      | ER     | 0.622 | 0.017| 37.107  | 0.000   | S           |
| I48      | ER     | 0.6   | 0.015| 39.825  | 0.000   | S           |
| I54      | ER     | 0.82  | 0.013| 62.992  | 0.000   | S           |
| I55      | ER     | 0.716 | 0.014| 51.825  | 0.000   | S           |
| I59      | ER     | 0.732 | 0.013| 55.766  | 0.000   | S           |
| I63      | ER     | 0.657 | 0.017| 38.577  | 0.000   | S           |

Based on the data in Table 1, all items in IPIUS are significant that they can be used in this instrument.

**Table 2. IPIUS construct validity**

|                       | N items | RMSEA | CFI  | TLI  |
|-----------------------|---------|-------|------|------|
| Preference for Online Social Interaction (POSI) | 17      | 0.026 | 0.999| 0.997|
| Escaping              | 10      | 0.021 | 0.999| 0.997|
| Cognitive Preoccupation| 8       | 0.028 | 0.999| 0.998|
| Compulsive Internet Use| 10     | 0.014 | 1.000| 0.999|
| Negative Outcomes     | 8       | 0.028 | 0.999| 0.999|
| Emotional Reactivity  | 10      | 0.019 | 0.999| 0.998|
| Indonesia Problematic Internet Use Scale (IPIUS) | 63      | 0.000 | 1.000| 1.001|

Based on the model compatibility parameters of Hu and Bentler [23], it can be seen that the overall dimensions in IPIUS have a model match with the data. IPIUS instruments are declared valid and applicable.

The factor size of each dimension in the IPIUS instrument can be seen in figure 1. From figure 1 it can be interpreted that each dimension has a good contribution to IPIUS and is significant so that each dimension in IPIUS can be interpreted as a single entity in the IPIUS instrument.

5. **Discussion**

Each dimension of the IPIUS instrument can be said to be valid including the IPIUS itself. It can be interpreted that IPIUS can contribute to the consensus of the PIU concept. IPIUS as a PIU measurement has quite complete aspects such as maladaptive cognitive, behavior, and emotion in internet usage. The existence of a modified escaping dimension from mood regulation [4] is considered suitable for this measuring instrument.

The emotional reactivity dimension in addition to maladaptive emotions in the IPIUS indicates that emotional problems can be made part of the PIU. Emotional Reactivity which is a threat to mental health [22] shows that PIU also involves emotional factors. This can be a contribution to the PIU assessment and needs attention from internet users. Emotional reactivity that is often found on internet posts is a sign of a negative impact from PIU.

The research limitation lies on testing the IPIUS model which is limited to undergraduate students and Indonesian territory. It is expected to be tested also in another different group age and other countries for future research.
Figure 1. Indonesian Model of Problematic Internet Use Scale (IPIUS)

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