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Validation of the Indonesian Version of the Psychological Capital Questionnaire (PCQ) in Higher Education: A Rasch Analysis

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Abstract

Purpose:
The present study aimed to validate the Indonesian-language version of the PCQ, specifically within the context of higher education, by utilising Rasch analysis to evaluate the reliability and validity aspect such as item-fit statistics, rating scale function, and differential item functioning of the instrument. These questionnaires are designed to assess students' initial psychological status, aiming to ease their transition from school to university and monitor undergraduate students' mental health.

Design/methodology/approach:
A total of 1012 undergraduate students (female = 61.2%; male = 38.8%) from a university in Central Java, Indonesia completed the 24-item Indonesian version of the PCQ. The sampling technique used is quota sampling. Data were analyzed using The Rasch model analysis, it was performed using the Winsteps 3.73 software.

Findings:
The results of the Rasch analysis indicated that the reliability of the instrument was good (α=0.80), item quality was excellent (1.00), and person reliability was consistent (0.77). In the validity aspect, all four domains of the PCQ exhibited unidimensionality, and a rating scale with four answer choices was deemed appropriate. The study also identify item difficulty level in each dimension.

Research Implications:
The practical implications of this study are beneficial for higher education institutions. They can use the validated Indonesian version of the PCQ to monitor the mental well-being of undergraduate students. Mapping the PsyCap can serve as a basis for developing and determining learning policies, potentially leading to improvements in student academic performance. The theoretical implications of this study are related to the advancement of measurement theory. By employing Rasch analysis, the study contributes to enhancing the validity and reliability of measurement, particularly in the context of educational and psychological assessment in Indonesia.

Originality/value:
This current study confirmed that the Indonesian version of PCQ adequately measures psychological capital in higher education, particularly in the Indonesian context.

Keywords: psychological capital, Rasch analysis, undergraduate student, validation, Indonesia

Introduction

Psychological capital (PsyCap) is a crucial aspect of college academic life, and previous research has demonstrated a positive and significant relationship between PsyCap and academic performance in university (Hossein et al., 2014; Martínez et al., 2021; Sweet et al., 2019). In addition, PsyCap also plays a central role in the academic adjustment (Liran & Miller, 2019), engagement (Siu et al., 2014), and positive outcomes (R. Li et al., 2023) among students.

Prior research has indicated that the level of stress encountered by college students is comparatively higher when compared to other demographic groups (Adlaf et al., 2001). A study of 14,000 students from 19 universities across 8 countries found that 35% of students met the criteria for at least one common mental health condition (Auerbach et al., 2016). Given the significant implications of these conditions for both students and universities, addressing student mental health has become research priority. This phenomenon is also found in Indonesia, the fourth most populous country in the world that located in Southeast Asia region. For several decades, there has been a sharp increase in the number of Indonesians attending university. Unfortunately, a large proportion of these students' report experiencing mental distress (Astutik et al., 2020; Kloping et al., 2021; Lili et al., 2021; Mardea et al., 2020).

Universities are under increasing pressure to enhance the psychological support services available to students. Previous research suggests that Psychological Capital (PsyCap) has a considerable positive impact on life satisfaction and a significant negative impact on depression and anxiety, both of which are common mental health conditions (Turliuc & Candel, 2022). Given the potential of PsyCap in supporting the mental health

of college students, it is crucial to explore the concept further in order to enhance the study and practice of good mental health, particularly among the Indonesian population where the presence of mental health stigma is notable (Subu et al., 2024). Universities can develop appropriate interventions to enhance PsyCap, as previous research has demonstrated its role in mental health (Khan et al., 2024). Conducting an Indonesian version of the PsyCap measurement is an essential first step before developing subsequent interventions, understanding its psychometric attribute of the instrument is crucial for that.

Literature Review

Psychological Capital

The concept of PsyCap, which has been evolving for over a decade, refers to a person's HERO positive psychological resources, characterised by Hope (perseverance to achieve goals), self-Efficacy (ability to take action), Resilience (strength to get back up, or bounce back when facing problems and challenges), and Optimism (confidence in present and future success) (Luthans, et al., 2007). Thus, PsyCap is an essential aspect of maintaining mental health, and achieving superior performance.

PsyCap integrates the four, which, when combined as higher-order core constructs, may interact synergistically to help maintain an internalised sense of control and intentionality while goals are being pursued and accomplished, over time, and across contexts (Luthans & Youssef-Morgan, 2017). The combination of these four positive psychological resources within the PsyCap concept is consistent with the Conservation of Resources (COR) Theory (Hobfoll, 2002; Hobfoll et al., 2018), which refers to a "caravan of resources"—psychological resources that interact synergistically, leading to varied

outcomes.

Previously, a plethora of studies about PsyCap have been done in the work and organisational contexts. PsyCap is a concept within the Positive Organisational Scholarship (POS) framework, which integrates various positive perspectives, including developing human strengths as well as generating resilience, and recovery. Specifically, the construct of PsyCap is a part of Positive Organisational Behaviour (POB) (Luthans & Youssef-Morgan, 2017). Several studies have discovered that PsyCap has a significant positive impact on an organisation, for instance, in terms of employee job searches (Chen & Lim, 2012; Georgiou & Nikolaou, 2019), job satisfaction (Badran & Youssef-Morgan, 2013; Durrah et al., 2016; Larson & Luthans, 2006), and job performance (Ngo, 2021; Peterson et al., 2011), work engagement (Paek et al., 2015), and innovative work behaviours (Ratnaningsih et al., 2015), organisational commitment (Larson & Luthans, 2006), and organisational citizenship behaviours (Avey et al., 2010; Jung & Yoon, 2015) as well as well-being (Kim et al., 2019). It has also been found to be negatively related to organisational cynicism, intentions to quit, counterproductive workplace behaviours (Avey et al., 2010; S. Li & Chen, 2018), and occupational stress (Avey et al., 2009; Krzeminska et al., 2018). These studies are in line with the literature, which found PsyCap to be a predictor of optimum individual performance and work attitude (Avey et al., 2011; Shah et al., 2019).

Hence, considering its potential positive impact, PsyCap should be further developed in the educational context, and not only in professional or organisational contexts. Adjustments in educational stages, such as the transition from high school to college, are challenging, and lead to anxiety (van Breda, 2018). This phase is a difficult

time that requires students to utilise all available resources to manage the changes in their lives (Cabras & Mondo, 2018). Such complex phases involve changes in personal, affective, social, and professional aspects, including not only academic issues, but also experiences of leaving home and parents, searching for one's identity, and making decisions for their career. This condition necessitates the capacity to adapt to a new life in order to alleviate tension, and improve academic performance.

Measurement of Psychological Capital

Some scholars have conducted research on the development of PsyCap instruments, but there is still a need for adaptation and validation in diverse cultures. The Psychological Capital Questionnaire (PCQ), which has been widely used instrument measure PsyCap, consists of 24 items that measure four dimensions (Luthans, Youssef, et al., 2007) of hope (Snyder et al., 1996), efficacy (Parker, 1998), resilience (Wagnild & Young, 1993), and optimism (Scheier & Carver, 1985). To date, there is a shorter version of the PCQ, which is referred to as PCQ-12 (Caza et al., 2010). Meanwhile, other measures of PsyCap have also been developed to overcome the limitations of the self-reported PCQ. Harms and Luthans (2012) developed an implicit measurement of PsyCap, called I-PCQ, that consists of eight items using the semi-projective technique, written in the form of short questions scored along a Likert rating scale. In addition, Lorenz et al. (2016) have also developed the Compound PsyCap Scale (CPC-12) to measure PsyCap in other settings within an organisation.

Although there have been various PsyCap measurements developed, the PCQ remains the most widely utilised instrument among scholars. Its use has been established

in Western contexts, for instance, the United States (Luthans, Avolio, et al., 2007), Italy (Alessandri et al., 2015), Portugal (Rego et al., 2012), and Spain (Azanza et al., 2014; Martínez et al., 2021). To the best of the authors' knowledge, for Eastern contexts, the PCQ has also been validated in China (Luthans et al., 2008), Thailand (Sapyaprapa et al., 2013), and Indonesia (Setyandari et al., 2020), with different cultures and religious backgrounds compared to the Western context. Hence, in acknowledging the significance of developing PsyCap in an academic context, with more empirical evidence having been developed in Western cultures, the primary aim of this current research was to provide a measuring tool for PsyCap in the Eastern academic context, specifically in Indonesia.

To validate the PCQ, the majority of scholars employed a Classical Test Theory (CTT) approach known as Confirmatory Factor Analysis (CFA), which has been criticised for its discriminatory tendencies, sample-dependent item difficulty, and its assumption of all respondents having the same measurement error (Alagumalai et al., 2005). Dawkins et al. (2013) conducted a comprehensive review of 29 studies that utilised the PCQ and PCQ-12, and reported that the reliability of the instrument was consistently greater than 0.70.

Meanwhile, Setyandari et al. (2020) adapted the PCQ for the Indonesian sample using forward-backward translation methods. However, they also tested this adapted PCQ based on the CTT approach using Cronbach's alpha ($\alpha = 0.759$), and item-total score correlation as analytical tool. A limited number of subjects (N=82) participating in the study led to limitations in the results (Setyandari et al., 2020), where 12 out of the 24 items showed low correlation values. To address this issue, the present study employed a larger sample size to allow a thorough examination of the adaptation process, which is essential to ensure that the meaning remains accurate while maintaining contextual relevance to

local cultural conditions (Arafat et al., 2016).

The main aim of the current study was to adapt and validate the PCQ for the Indonesian context as one of the Eastern cultures by employing Rasch analysis, a statistical approach based on Item Response Theory (IRT). As part of the Rasch analysis process, original raw scores were transformed into odds ratios, which were then subjected to logarithmic conversion to produce logit units. These logit units possess both interval scale, and linear characteristics, allowing for a more precise estimation of the high-level characteristics of individuals, and the inherent difficulty levels of items. This was achieved through the use of the standard logit unit, which facilitates meaningful comparisons between individual trait levels, and item difficulties (Andrich & Marais, 2019; Sumintono & Widhiarso, 2014). Rasch analysis provides person-item maps, which display both items and individuals on a common logit scale based on item difficulty estimates (Bond & Fox, 2015). Furthermore, this analysis method not only provides information on the reliability of individuals, but also the reliability of items.

Moreover, it is noteworthy that the Rasch analysis offers a number of crucial advantages. First, it may determine whether the elements collectively contribute to a unidimensional construct. Second, the method facilitates calibration of the magnitude of distinctions between individual items on an interval scale. Finally, it allows for the measurement of each individual along the newly defined variable, thereby providing a comprehensive and robust framework for psychometric evaluation and analysis (Fox & Jones, 1998).

Currently, there is no research that has employed Rasch analysis to examine the PCQ in the Indonesian context. Additionally, while the PCQ has shown strong performance

in Cronbach's alpha analysis, some items exhibit low correlations. Given the benefits of Rasch analysis, this study aimed to address this gap by examining the complete psychometric attributes, which include dimensionality, rating scale functioning, item properties, person responses, reliability, and differential item functioning (DIF), of the Indonesian PCQ (Lee et al., 2021; .

This study aims to validate self-rating questionnaires that can be used for screening the baseline of undergraduate students' psychological condition, as a means to facilitate the transition from school to university. The current research results are expected to be beneficial to researchers and higher education institutions in monitoring mental health among undergraduate students, given the rising number of cases related to mental health issues.

Method

Participants and Procedures

A total of 1080 participants were involved in this study. After screening the data to filter the outliers with the criteria of MNSQ outfit values greater than 2.00 (Widhiarso & Sumintono, 2016), the final data contained 1012 participants (61.2% female, 38.8% male; aged 18 to 21 years old). All participants were from an undergraduate programme at a public university in Semarang, Central Java, Indonesia. The researcher, assisted by several research assistants, collected data from the students at 11 faculties (see Table 1).

Quota sampling was employed to collect data from about 100 students from each faculty. This approach enables the acquisition of a good representation of a sizable population and facilitates a more accurate analysis of the data by including relevant variations for the study. The participants included freshmen, sophomore, third-year, and

fourth-year university students. The questionnaire was administered in person (offline) using the paper-and-pencil method, where the research assistants met with the participants to explain the research purpose, and requested them to complete the questionnaire. On the cover page of the questionnaire, it was explicitly noted that the survey was strictly anonymous and voluntary, thereby ensuring the confidentiality and privacy of the respondents. By participating in the survey, the respondents agreed to the terms and conditions outlined in the questionnaire.

Table 1. Demographic Information of Participants (N=1012)

Demographics	N	Percentage (%)
Gender		
Female	634	61.2%
Male	378	38.8%
Cluster		
Faculty of Economics and Business	98	9.1%
Faculty of Humanities	98	9.1%
Faculty of Social Science and Political Science	100	9.3%
Faculty of Medicine	97	9%
Faculty of Public Health	96	8.9%
Faculty of Fisheries and Marine Science	98	9.1%
Faculty of Animal and Agricultural Science	100	9.3%
Faculty of Science and Mathematics	100	9.3%
Faculty of Engineering	95	8.8%
Faculty of Law	96	8.9%
Faculty of Psychology	102	9.4 %

The Instrument

The PCQ consisted of 24 items that were used to measure four dimensions: hope, self-efficacy, resilience, and optimism. This scale was developed by modifying Luthans et al.'s (2007) Psychological Capital Questionnaire (PCQ-24), which was used in the organisational context. First, the items were adapted and validated for the Indonesian version using back-translation method (Brislin, 1970). The procedure began with the initial translation of the original version into Indonesian by the first translator, followed by the

translation of the Indonesian version back into English by the second translator. In the last stage, the back-translated version was compared to the original by the authors and other independent psychology academicians to validate the translation accuracy. Several items, which had some organisational terms, were adjusted to the campus setting, such as *"I feel confident contributing to discussions about the company's strategy"* becoming *"I feel confident contributing to discussions about the topic of the lecture"*. Each of the items was to be evaluated on a four-point Likert rating scale, ranging from strongly agree to strongly disagree.

Data Analysis

The Rasch model analysis was performed in the Winsteps 3.73 software (Linacre, 2011) was utilised for polytomous data processing. Each question had a score of 4, 3, 2, or 1, with the highly appropriate rating equivalent to 4 points while the highly inappropriate was 1 point. First, data cleaning was conducted to eliminate outliers. If respondents had not provided any answers, it was considered blank/missing data. The raw data were saved in the Microsoft Excel extension of PRN format. Second, the results of the analysis explained the unidimensionality of the items through standardised residual variance. The output results indicated a variance value with a minimum of 20% that meets the unidimensionality standard. The following step involved the utilisation of rating scale analysis, with the purpose of evaluating the validity of the answer choices presented. This analysis sought to establish whether the selected answers were effective, and did not cause confusion among respondents. The references used for this assessment were the observed average index values, and Andrich threshold. The answer option was considered optimal

if the score improved, or was the highest among all the choices provided.

Fourth, to investigate the quality of the items, they were examined using item-fit statistics. If the data matches the Rasch model, the mean-square will be 1.0 while the standardised value is 0.0. Boone et al. (2014) stated that to determine the suitability of the questions and the criteria: *Point Measure Correlation* (x) : $0.4 < x < 0.85$, *Outfit Mean Square* (y): $0.5 < y < 1.5$, *Outfit Z standard* (z): $-2.0 < z < +2.0$. This means that, based on the three criteria in the software analysis, a misfit item represents an item that is unqualified, indicating that the item did not measure the desired characteristic (Lee et al., 2016; Rusland et al., 2020).

Following that, the difficulty level of the items, reflecting how likely the respondents were to agree with it, was analysed. In this analysis, for the person score for each item, if the average logit was more than 0.00, it indicates that the respondent had a higher level of approval of the item. Furthermore, item bias analysis was carried out with reference to the DIF contrast, Welch t test, and Mantel-Haenszel probability. DIF is useful to determine whether the items have biases according to respondent categories or demographics. Items with a probability value below 5% (0.5) were categorised as biased.

RESULTS

Table 2. Summary of Statistics

	Person	*Item*
N	1012	24
Measures (logit)		
Mean	1.36	0.00
Standard deviation (SD)	0.95	1.05
Standard error (SE)	0.03	0.22
Outfit Mean Square		
Mean	1.00	1.00
SD	0.47	0.24

Separation	2.14		17.02
Reliability	0.82		1.00
Cronbach's Alpha		0.81	
Chi-Square		36249.64**	
Unidimensionality (raw variance)		36.9%	
Unexplained variance		5.1%	

**p<0.01

Table 2 illustrates a positive score for all respondents as indicated by the logit average of +1.36. The item logit mean value was 0.00, and its standard deviation was about 1 logit (1.05), suggesting that the items on the PsyCap scale exhibited variability. The person reliability was 0.82, indicating that the subjects' answers were within the good category (Sumintono & Widhiarso, 2014). The item reliability was 1.00, indicating that the instrument had good internal consistency, which is the hallmark of a reliable instrument (Bond & Fox, 2015). Additionally, the Cronbach alpha coefficient's value of 0.81 suggests an excellent interaction between person and item. The high Cronbach alpha value indicates good instrument quality, and the great separation value (2.14) indicates the respondents' ability to provide appropriate responses. The mean-square value between person and item, at a value of 1.0, was supported by a significant chi-square value, indicating that the data fits the model (Boone et al., 2014).

Dimensionality

The dimensionality analysis aimed to determine if all scales were unidimensional. Upon conducting the analysis, it was found that the raw variance data constituted 36.9% (see Table 2 above), which was slightly higher than the anticipated value of 35%. Nevertheless, the minimum requirement of 20% for unidimensionality had been achieved. In addition, the unexplained variance did not exceed 15%, indicating that the level of item independence as an instrument was satisfactory (Bond & Fox, 2015).

Rating Scale Analysis

Figure 1 indicates that the respondents' average observations for the appropriateness of the options were as follows: -0.79 for option 1 (highly inappropriate), 0.15 for option 2 (inappropriate), 1.50 for option 3 (appropriate), and 2.83 for option 4 (highly appropriate). Moreover, the Andrich threshold value moved from NONE to 3.60 sequentially, indicating a positive trend. As shown in Figure 1, all probabilistic ratings were above 60%, suggesting that the provided rating scale was suitable for the respondents, and they were able to fully understand the options given.

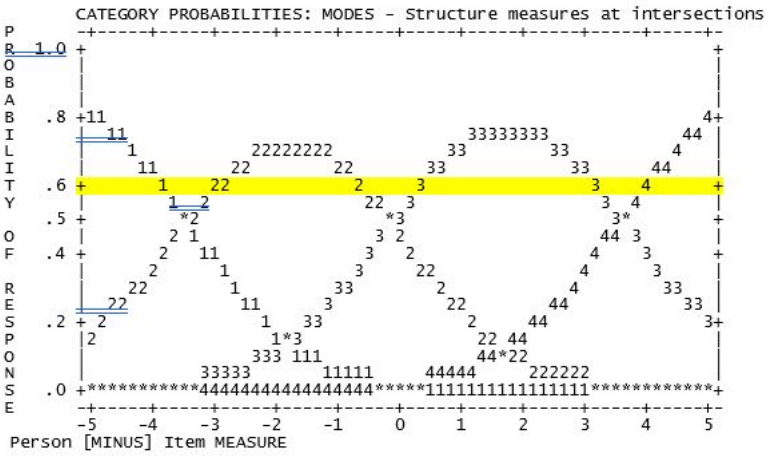

Figure 1. Rating Scale Analysis

Item-Fit Statistics

Based on the item analysis (Table 3), overall, the items presented good results by obtaining outfit MNSQ scores of between 0.5 to 1.5 (Boone et al., 2014). This was supported by the standard error (SE) model, whereby all scores were a low 0.06, illustrating that the items meticulously measured accurately. Meanwhile, based on the item logit scores, the item regarded as most highly inappropriate by respondents in the PsyCap

instrument was item O5 (optimism), with a score of 2.64. Conversely, item H3 (hope) with a logit score of -2.19 was the mostly easily agreed upon item.

Table 3. Item Properties for the Indonesian PCQ

No.	Dimension	Item	Logit	SE	Outfit Mean Square (MNSQ)	Point Measure Correlation (PTME)
1	Self-Efficacy	S1	-0.62	0.06	0.59	0.49
2		S2	0.01	0.06	1.08	0.53
3		S3	-0.37	0.06	0.66	0.52
4		S4	-1.07	0.06	0.72	0.45
5		S5	0.25	0.06	1.14	0.48
6		S6	-0.26	0.06	0.80	0.47
7	Hope	H1	-0.26	0.06	1.11	0.44
8		H2	-1.01	0.06	1.43	0.51
9		H3	-2.19	0.06	1.00	0.44
10		H4	0.96	0.06	0.94	0.54
11		H5	-0.29	0.06	0.69	0.57
12		H6	1.11	0.06	1.06	0.52
13	Resilience	R1	0.23	0.06	1.27	0.44
14		R2	-0.08	0.06	0.47	0.41
15		R3	-0.50	0.06	0.96	0.49
16		R4	0.22	0.06	0.88	0.44
17		R5	0.06	0.06	0.80	0.47
18		R6	0.97	0.06	0.98	0.45
19	Optimism	O1	-0.33	0.06	1.12	0.33
20		O2	2.09	0.06	1.48	0.08
21		O3	-0.76	0.06	1.00	0.48
22		O4	-0.08	0.06	1.31	0.35
23		O5	2.64	0.05	1.23	0.14
24		O6	-1.09	0.06	1.15	0.36

Person-Item Map

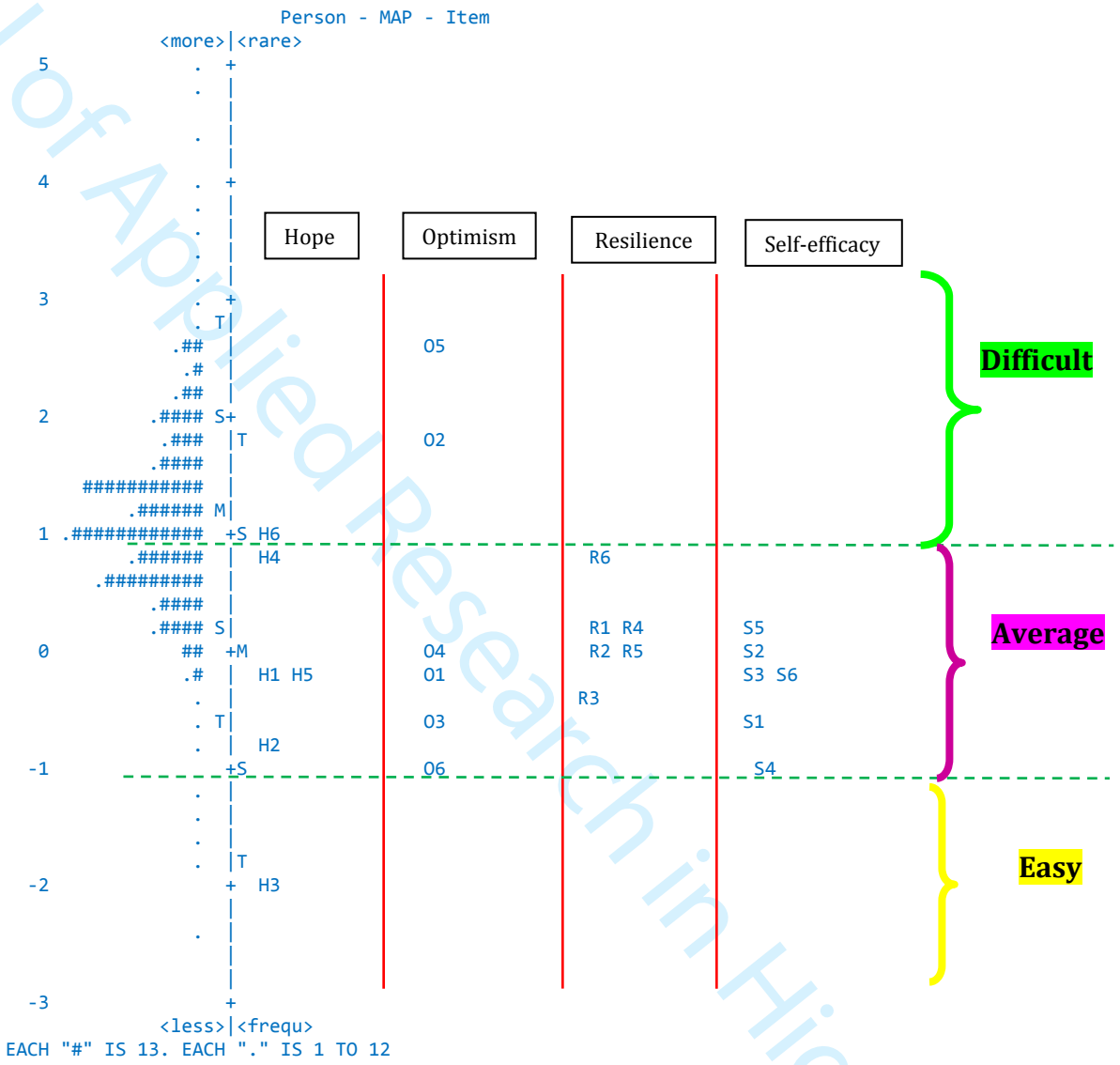

Figure 2. Wright Map for Psychological Capital Dimension

The Wright map (Figure 2) shows the person-item map, where the left column is the person column while the right is the item column. The 24 items were at various levels starting from O5 with the highest level of difficulty to H3 with the lowest. The items with levels of difficulty above the average item logit value (+ 0.00 logit) were not agreed on by

the respondents. On the other hand, items that had item logit values below the average were those that were easily agreed on by the respondents.

Table 4. Item Difficulty Level

Dimension	Difficulty Level		
	Difficult	Average	Easy
Dimension 1: Hope	H6	H1, H2, H4, H5	H3
Dimension 2: Optimism	O5, O2	O4, O1, O3, O6	
Dimension 3: Resilience		R6, R1, R4, R2, R5, R3	
Dimension 4: Self-efficacy		S5, S2, S3, S6, S1, S4	

Table 4 shows the items grouped based on their difficulty levels as they appear in the Wright map (Figure 2). The dimensions of hope and optimism had items that varied in their level of difficulty, or tendency to be approved by respondents. Meanwhile, the dimensions of resilience and self-efficacy tended to be less challenging to be approved by respondents.

Differential Item Functioning Analysis

The differential item functioning (DIF) analysis was performed to identify gender-biased items. As shown in Figure 3, the response patterns of the male and female students are displayed, revealing the gender-biased items S1, S2, S5, R4, R5, O2, O3, and O5, with a probability value of greater than 5%. If the curve approaches the upper limit, it signifies that the item is difficult for the respondent to agree on (e.g., O2) while if the curve is close to the lower limit, it indicates that the item is relatively easy for the respondent to approve, such as item 3, which had a similar response pattern between male and female students. Additionally, the response pattern for item S2 differed slightly, meaning that it was easier for female respondents to agree with, but was not for male respondents.

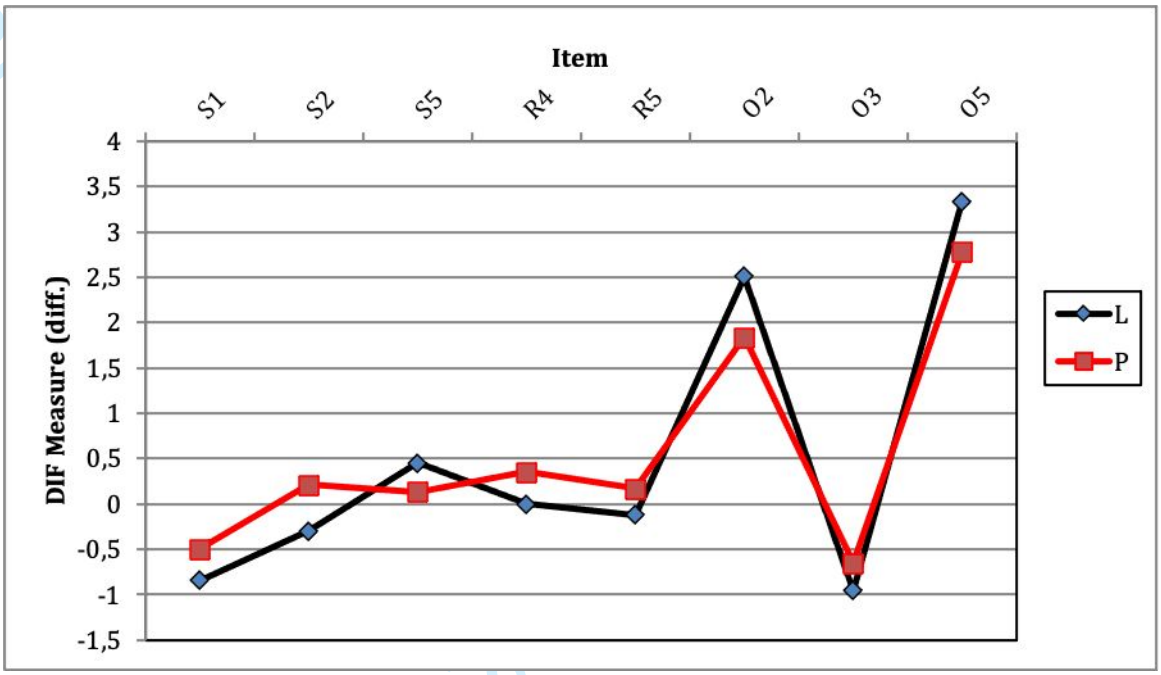

Figure 3. DIF Analysis Based on Gender; Note: L = Male, P = Female

DISCUSSION

The present study's main aim was to adapt the PCQ-24 to the higher education context, and validate the Indonesian translation of the PCQ-24 due to a lack of PsyCap measurements, and facilitate international PsyCap research and applications. Generally, the findings show that the Indonesian PCQ had adequate psychometric properties, particularly in terms of reliability, item properties, category function, and unidimensionality. The instrument's reliability was also adequate, as indicated by α=0.81, which was above 0.70. It reflects the overall reliability of the person-item interaction in practice. Furthermore, the person-test reliability, and item reliability values were 0.82 and 1.00 respectively. This suggests that the respondents' answers were consistent, and the

items were of excellent quality. The four-point Likert scale was effectively used, and participants comprehended it completely. However, some items were detected to have DIF by gender. With these results, deleting any items from the Indonesian academic PCQ-24 was not recommended.

The mean for the person measure was +1.36 logit, indicating that the PsyCap scale was easily endorsed by the Indonesian sample. Overall, it can be observed that item H3, *"There are many possible alternatives in solving problems"* was the most agreed upon item. It reflects that college students have many ways of finding the solutions to their own problems. Meanwhile, item O5, *"During this study, several things happened in a way I did not want them to"* was agreed on the least. This indicated that events that happen during their college life were considered something that they could easily manage or predict. These college students believed that they can manage everything in their life according to their initial plans or expectations.

Notably, among all the items categorised under the Average group, the two highest-scoring ones, which were from the hope dimension, H6 (+1.01 logit) and H4 (+0.96), tended to be difficult to be agreed on. In contrast, analysis on the optimism dimension revealed that the items were evenly distributed in terms of their agreeability. However, two items, O5 and O2, were above the individual logit average (+1.36 logit), indicating that they were the least agreed-upon items. Almost all items in the self-efficacy and resilience dimensions had the same item logit, indicating that those items had the same level of discrimination.

There are several implications from this study for the improvement of Indonesian higher education. First, the validated Indonesian version of the PCQ from this current study

can serve as a foundation for enhancing the PsyCap of higher education students in Indonesia. The Indonesian PCQ can have a positive impact on the local society as it can be utilised by universities as a measurement tool to assess students' PsyCap. Mapping the PsyCap can serve as a basis for developing and determining learning policies, and lead to improvements in student academic performance. Prior research has indicated that interventions aimed at enhancing students' PsyCap can help them to manage their lives more effectively, both mentally and physically (Carmona-Halty et al., 2021; Chaffin et al., 2023). Furthermore, students with higher levels of PsyCap tend to perceive the academic environment more positively, thus experiencing lower levels of academic stress.

In addition, with the large number of human resources in Indonesia, it is crucial to effectively prepare higher education students to enter the professional world. Thus, enhancing their PsyCap is important to result in their improved performance, and serve as a competitive edge. Psycap measuring tools are crucial to achieve this. Several previous studies have demonstrated that PsyCap acts as a positive indicator of performance (Choi et al., 2020; Huang et al., 2021).

Limitations and Suggestions

The current study had several limitations that must be acknowledged. First, the use of a self-reported measurement means that it was prone to common method bias (Podsakoff et al., 2003, 2012), which could potentially impair the accuracy of the findings. Second, the study employed a cross-sectional design, which is inherently limited in its ability to establish causal relationships. Third, the research sample consisted of undergraduate students from a single university; future studies should aim to include students from a more diverse range of academic institutions.

CONCLUSION

The Indonesian PCQ has adequate psychometric properties, with the Rasch model analysis also showing that it has good reliability, validity, rating scales, and unidimensionality. Based on the research using the Rasch analysis model, it can be concluded that the 24-item Indonesian PCQ for college students is qualified to be used as a research instrument to measure their PsyCap. Other researchers may conduct a similar research for different levels of education. Moreover, this method can also be used to reveal the university students' PsyCap in relation to other variables.

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Summary reviewers' comments

Reviewer #1

Recommendation: Accept

Comments:
The paper was good, every part was clear presented and organized.
I dont see there is any issue related to research objective, methods and analysis.
You may need to check grammer and improve the language of your manuscript.

No	Comments & Suggestion	Actions Taken	Remarks
1	Originality: Does the paper contain new and significant information adequate to justify publication?: ***Yes***	Thanks for the positive comments to our manuscript, really appreciate it	
2	Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: ***Yes***	Thanks for the positive comments to our manuscript, really appreciate it	
3	Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: ***Yes***	Thanks for the positive comments to our manuscript, really appreciate it	
4	Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: *Yes*	Thanks for the positive comments to our manuscript, really appreciate it	
5	Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes,	Thanks for the positive comments to our manuscript, really appreciate it	

	affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: ***Yes***		
6	Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: ***Yes***	Thanks for the positive comments to our manuscript, really appreciate it	

Reviewer #2

Recommendation: Reject

Comments:
This research is mainly replication, testing existing measure into the Indonesian context. The Indonesian value has not been added into the measurement. The manuscript could be better if the authors highlighted certain values that were omitted in the existing instruments.

No	Comments & Suggestion	Actions Taken	Remarks
1	Originality: Does the paper contain new and significant information adequate to justify publication? ***No, the manuscript does not have originality, as they are aiming at developing an Indonesian version of PCQ that adequately measures psychological capital in the Indonesian context. Some scholars have conducted research on the development of PsyCap instruments, but there is still a need for adaptation and validation in diverse cultures. So this research only testing the implementation of PCQ in Indonesian context? so it is only replication without novelty.***	Thanks you for your comment. We added information on practical and theoretical implications in the abstract section. **(page.1)** The PCQ instrument was previously more commonly used in industrial and organizational contexts. In this study, we adapted it for use in the context of students in higher education and conducted adaptation in the Indonesian	

		language. Additionally, we tested its psychometric properties of the instrument using Rasch model analysis, which is an item response theory approach, different from the classical test theory approach that has been commonly used. The paper fill in the knowledge gaps in the context of study location, higher education situation, and type of analysis conducted with cover from instrument level to the item level using Rasch analysis.	
2	Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored? ***There are no sections of literature review? However, the authors added some relevant theories in the introduction***	Thank you for your comment. We have revised the manuscript by separating the introduction and literature review sections to enhance clarity for readers regarding our research objectives. **(page.1-2)** At the end of the introduction, we emphasize that this PsyCap measurement tool contributes to mapping the psychological condition among students, amidst the increasing issue of mental health among university students. **(page.2)** This study aims to validate self-rating questionnaires designed for assessing the initial psychological status of undergraduate students, aiming to ease their transition from school to university. The findings of this current research are beneficial for higher education institutions in monitoring the mental health of undergraduate students, particularly in light of the growing number of mental health cases. **(page.7)** **Added references:** Subu, M. A., Dias, J. M., Mottershead, R., Ahmed, F. R.,	

Narulita, S., Maryuni, M., … Al-Yateem, N. (2024). Exploring mental health stigma among Indonesian healthcare students towards individuals with mental illnesses: a qualitative study. International Journal of Qualitative Studies on Health and Well-Being, 19(1). https://doi.org/10.1080/17482631.2024.2327103

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Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., Hwang, I., Kessler, R. C., Liu, H., Mortier, P., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L. H., Benjet, C., Caldas-De-Almeida, J. M., Demyttenaere, K., … Bruffaerts, R. (2016). Mental disorders among

		college students in the World Health Organization World Mental Health Surveys. Psychological Medicine, 46(14), 2955–2970. https://doi.org/10.1017/S0033291716001665	
3	*Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?* ***The methodology needs to be further elaborated, starting from the population size, sampling techniques, why do you use quota sampling. The tool of analysis must also be justified.***	Thank you for your comment. Quota sampling was employed to collect data because it enables the acquisition of a representative sample from a sizable population (in this case population of student in a university). This method facilitates a more accurate analysis of the data by including relevant variations for the study **(page.8)** The Rasch model analysis was performed in the Winsteps software version 3.73, which is a specialised software that use Rasch model analysis using JMLE estimation method (see: https://www.winsteps.com/winsteps.htm) **(page.9)**	
4	Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: ***The results are presented clearly.***	Thanks for the positive comments to our manuscript, really appreciate it	
5	Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: ***There are no theoretical or practical implications.***	Thank you for your comment The results of this study have practical implications for higher education institutions, as they can use them to monitor the mental well-being of undergraduate students, especially given the rising incidence of mental health issues **(page.7).** The theoretical implications of this study are related to the advancement of measurement theory. By employing Rasch analysis, the study contributes to the advancement of measurement theory, particularly in the context of educational and psychological assessment in Indonesia. Additionally, the validation process using Rasch analysis enhances the validity and reliability of the measurement	

		instrument in assessing the construct of interest among Indonesian-speaking populations. The study demonstrates the cross-cultural validity of the measurement instrument, indicating its effectiveness in Indonesian-speaking populations, which could have broader implications for measurement across different cultures **(page.6).** There are several implications from this study for the improvement of Indonesian higher education. First, the validated Indonesian version of the PCQ from this current study can serve as a foundation for enhancing the PsyCap of higher education students in Indonesia. The Indonesian PCQ can have a positive impact on the local society as it can be utilised by universities as a measurement tool to assess students' PsyCap. Mapping the PsyCap can serve as a basis for developing and determining learning policies, and lead to improvements in student academic performance. Prior research has indicated that interventions aimed at enhancing students' PsyCap can help them to manage their lives more effectively, both mentally and physically (Carmona-Halty et al., 2021; Chaffin et al., 2023). Furthermore, students with higher levels of PsyCap tend to perceive the academic environment more positively, thus experiencing lower levels of academic stress. In addition, with the large number of human resources in Indonesia, it is crucial to effectively prepare higher education students to enter the professional world. Thus, enhancing their PsyCap is important to result in their improved performance, and serve as a competitive edge. Psycap measuring tools are crucial to achieve this. Several previous studies have demonstrated that PsyCap acts as a positive indicator of performance (Choi et al., 2020; Huang et al., 2021). **(page.19)**	

6	Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? ***Acceptable, the paper clearly expresses its case, measured against the technical language of the field and the expected knowledge of the journal's readership.***	Thanks for the positive comments to our manuscript, really appreciate it	