Common Errors of Reliability and Validity Testing in Guidance and Counseling Research

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Abstract

This research aims to identify common problems that occur in reliability and validity testing in research in the field of guidance and counselling. This research uses the Systematic Literature Review (SLR) method, which examines and reviews several articles related to common errors in reliability and validity testing. This research searched for several articles from various sources such as Google Scholar, Semantic Scholar, Springer, Routledge Taylor & Francis Group, Research Gate, and frontiersin.org within the past 5 years (2013-2023). The articles that have been searched are then analysed for common errors that appear related to reliability and validity testing, the results of this analysis are presented in tabular form and explained descriptively. The results of this study indicate that several studies in the field of counselling have 9 common errors that are often made in conducting quantitative research. These errors are: not including reliability and validity, not iterating and revising unreliable items, not conducting content validity analysis, not conducting construct validity analysis, mismatching the instrument with the characteristics of the item, the absence of judgment validity, not describing favourable and unfavourable items, limited samples on the instrument, and doubtful construct validity and the need for reliability testing on a wide scale. His research can be a study and reference material in conducting quantitative research, especially in the field of guidance and counselling.

Keywords: *Common Errors, Reliability and Validity, Guidance and Counseling*

INTRODUCTION

A study is conducted to test and prove knowledge or it can also provide information about something that is being sought (Martias, 2019). In a study there will be data processing so that it becomes the basis for drawing conclusions. In a qualitative context, data processing is carried out in qualitative ways or in descriptive form, while in quantitative research the data processing is usually carried out using statistical data.

Statistics is a branch of mathematics and a methodological discipline, and it is a coherent idea and tool for handling data (Cobb & Moore, 1997). According to Ahmaddien & Syarkani (2019) statistics is the study of collecting, processing, interpreting, and drawing conclusions from data. Statistics will not be separated from quantitative research, and are used to develop research models, formulate hypotheses, determine population,

sampling and analyze data (Kurniasih, 2020). Statistics can be divided into 2, that are descriptive statistics and inferential statistics.

According to Chan et al (2016), descriptive statistics consist of measures of data concentration (mean, median, and mode), and measures of data dispersion (range, variance, standard deviation, and interquartile range). Descriptive statistics are usually very concerned with collecting and presenting data in a group whose data can be used to explain or draw conclusions from the group (Sumanto, 2014). Meanwhile, inferential statistics is a method for testing parameters, either parametric or non-parametric, and testing hypotheses to draw conclusions (Rangkuti, 2017).

In conducting quantitative research there are a series of processes that must be carried out by researchers, a very important aspect in quantitative research is how the instruments used are reliable and valid, so that the conclusions are not biased. The existence of instruments in research is very important because it is related and integrated with research methods. Research instruments are used in data collection, data processing, and analyzing and presenting data objectively so that they can solve problems or test hypotheses (Nasution, 2016). So, the requirement for the instrument to be realibel and valid means that the instrument has been tested for reliability and validity.

The reliability model should provide information in providing confidence in the truth of a program or data (Hamlet, 1992), the reliability test is used to determine the consistency of the instrument or measuring instrument, so that when repeated testing the results remain consistent. Meanwhile, validity is defined as the extent to which a concept can be accurately measured in quantitative studies (Heale & Twycross, 2015). According to Matondang (2009), reliability and validity testing are influenced by the instrument, the subject being measured, and the person taking the measurement.

Academics who write quantitative research or in the form of scientific articles must certainly realize that the position of reliability and validity tests is a prerequisite, so this must be included and listed in scientific articles. According to Ningsih & Aviory (2020), scientific articles are studies of research results by academics published in scientific journals. This article will examine in detail how common errors occur in testing reliability and validity in quantitative research, the aspect of the study will be focused on the fields of personal, learning, social, and career guidance and counseling. This research will be a study and reference for other researchers in preparing quantitative research, especially in testing reliability and validity.

METHOD

This research uses the literature study method. According to Danial & Warish (2009), the literature study method is a research with the procedure of collecting various related information from various sources and references such as books, scientific articles, magazines and other relevant sources. The type is using Systematic Literature Review (SLR). The SLR method allows researchers to review and identify scientific articles from various journals (Triandini et al, 2019), with structured analysis following predetermined steps, namely identifying, assessing, and interpreting all available research evidence (Turner et al, 2010).

Data collection was carried out in this study by searching for various references from Google Scholar, Semantic Scholar, Springer, Routledge Taylor & Francis Group, Research Gate, and frontiersin.org about common errors that occur in reliability and validity testing in research in the field of guidance and counseling. The articles collected spanned the past 5 years (2018-2023). The existing articles were then grouped based on the types of errors that appear in reliability and validity testing. The analysis in this study uses synthesis (summarizing) the findings in scientific articles arranged in qualitative descriptive form.

RESULT AND DISCUSSION

The results of this study present some literature related to some common errors that often occur in testing the reliability and validity of an instrument, the research reviewed focuses on quantitative research in the field of guidance and counseling. The details of these common errors are described in Table 1 below.

Table 1: Common Errors in Testing Instrument Reliability and Validity

No	Article	Author	Published	Core Problem	Sources
1	Pengembangan Modul Bimbingan Karir Untuk Meningkatkan Kematangan Karir Siswa Sekolah Menengah	Ridni Eliza, Riska Ahmad, Mega Iswari Biran Asnah, Afdal	2023	Does not include instrument reliability test	Google scholar
2	Pengembangan panduan bimbingan karir berbasis pendidikan kecakapan hidup (life skill) dengan pendekatan teori karir super untuk meningkatkan perencanaan karir siswa di sekolah menengah kejuruan	Jhon Riyanto, Luh Putu Sri Lestari, Kadek Suranata	2023	Does not include instrument reliability test	Google scholar
3	Efektivitas Pelaksanaan Layanan Bimbingan Pribadi Oleh Guru Bimbingan Konseling	Sawal Mahaly	2021	No data collection techniques, no validity and reliability.	Google Scholar
4	Profil Kemandirian Belajar Mahasiswa Bimbingan dan Konseling	Budi Astuti	2019	Does not include instrument reliability results	Google Scholar
5	Perilaku Narsistik Pengguna Media Sosial di Kalangan Mahasiswa dan Implikasi dalam Layanan Bimbingan Dan Konseling	Trisna Gustia Rahman &Asmidir Ilyas	2019	Does not include validity and reliability.	Google Scholar
6	Pengaruh Permainan Tradisional Gobak Sodor dalam Bimbingan Kelompok terhadap Peningkatan Interaksi Sosial Anak	Fifi Khoirul Fitriyah & Musfota	2019	Does not include validity and reliability.	Google Scholar

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10	Learning Styles Profile and Their Impact on Learning Behavior of Islamic Guidance and Counseling Students During Pandemic	Evia Darmawani, Ahmad Rofi Suryahadiku mah	2022	Does not include validity and reliability	Semantic Scholar
11	Development of Strengthening Good Character Education Scale as a Need Assessment Instrumen for Guidance and Counseling Teachers	Awaluddin Tjalla, Wirda Hanim	2023	Of the 44 items made in the instrument, 23 items were eliminated and no iterations and revisions were made on unreliable items.	Semantic Scholar
12	Development of a Scale for Measuring the Competencies of Islamic Counselors	Imas Kania Rahman, Noneng Siti Rosidah, Abas Mansur Tamam	2023	Did not conduct content validity index analysis	Semantic Scholar
13	Development of a Self-Efficacy Scale for Vocational School Student	I Kadek Febry Saputra, Ni Ketut Suarni, Nyoman Dantes	2020	Did not perform construct validity	Semantic Scholar
14	Validation of Self-Efficacy for Self-Regulation of Academic Writing Scale: An EFA and CFA with Measurement Invariance	Lubna Shaheen, Harris Shah Abd Hamid, Siaw Yan-Li	2022	Mismatch between instrument and item characteristics	Semantic Scholar
15	Using Bifactor EFA, Bifactor CFA and Exploratory Structure of the Meaning in Life Questionnare, Greek Version	Anastasios Stalikas, Thedoros A. Kyriazos, Vasiliki Yotsidi, Konstantina Prassa	2018	No judgment validity that affects construct validity	Semantic Scholar
16	Development and Validation of the Genetic Counseling Self-Efficacy Scale (GCSES)	Sarah Caldwell, Katie Wusik, Hua He, Geoffrey Yager, Carrie	2018	Favorable and unfavorable items are not spelled out and affect the reliability and	Springer

			Atzinger		validity of the instrument.	
17	Vocational Values Scale: Initial Development and Testing of the Student Form (VV-S)	Kokou A. Atitsogbe, Jean-Luc Bernaud	2022	Favorable and unfavorable items are not described and affect internal reliability and face validity.	Springer
18	Skala Emotional Well Being (EWB) Bagi Mahasiswa di Masa Pandemi Covid 19	Rosalia Dewe Nawantara, Setya Adi Sancaya	2021	There were 16 out of 50 items that were invalid and not retested.	Semantic Scholar
19	Beliefs and Evaluations About Counseling Services (BEACS): Scale Development	Seong-In Choia, Lawrence H. Gersteinb	2019	Item characteristics are not met, thus affecting construct validity	Routledg e Taylor & Francis Group
20	Empirical Development and Verification of Career Well-Being Scale for Teachers in Taiwan: Implications for Workplace Counseling	Min-Ning Yu, Peter Yang	2022	Favorable and unfavorable items are not described and affect internal reliability and construct validity.	frontiersi n.org
21	Prepared for Counseling: Introducing a Short Scale and Correlates	Gary Blau, John Dimino	2019	Limited sample that affects external validity and generalizability	Routledg e Taylor & Francis Group
22	Genered Racial Microaggressions Scale for Asian American Women: Development and Initial Validation	Brian TaeHyuk Keum, Jennifer L. Brady, Rajni Sharma Yun Lu, Young Hwa Kim, and Christina J. Thai	2018	Limited sample size, affecting external validity, and lack of repeat reliability testing.	Research Gate
23	The Encouragement Character Strength Scale: Scale Develompment and Pychometric Properties	Y. Joel Wong, Munyi Shea	2019	Limited sample that affects external validity and generalizability	Research Gate
24	Development and Initial Testing of the	Adith Gonzalez,	2020	Poor internal consistency	Routledg e Taylor

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	Multidimensional Cultural Humility Scale	Katharine R. Sperandio, Patrick R. Mullen, Victor E/ Tuazon		reliability in certain subscales	& Francis Group
25	Beliefs and Evaluations About Counseling Services (BEACS): Scale Development	Seong-In Choi, Lawrence H. Gerstein	2019	Limited sample that affects the instrument	Routledg e Taylor & Francis Group
26	Assessing Student's Perception of Parental Career-Related Support: Develompent of a New Scale and a New Taxonomy	Diego Boerchi, Semira Tagliabue	2018	Construct validity is doubtful in interpreting the results, and it is necessary to conduct reliability tests on a wide scale.	Springer
27	The Counseling Training Enviroment Scale: Initial Development and Validity of a Self-Report Measure to Assess the Counseling Training Environment	Jared M. Lau, Kok-Mun Ng, David B. Vallett	2019	Limited samples affect external validity and generalizability, and non-random placement of items can introduce potential biases that affect construct validity.	Routledg e Taylor & Francis Group

From Table 1 above, there are at least 9 common errors that need to be considered in conducting quantitative research, these common errors include not including reliability and validity, not iterating and revising unreliable items, not conducting content validity analysis, not conducting construct validity analysis, incompatibility of instruments with item characteristics, absence of judgment validity, not describing favorable and unfavorable items, limited samples on the instrument, and construct validity that is doubtful and needs to be tested for reliability on a wide scale.

Reliability and validity testing in instruments is a prerequisite that must be carried out by researchers who are conducting research in the quantitative field, so this reliability and validity component needs to be included as a complete study and consideration in drawing conclusions, besides in making instruments need to look at content validity and construct validity. Content validity is used so that instrument items can represent the concept under study, while construct validity is used to select the best instrument items, so it is also very relevant that construct validity has a role in providing high accuracy in measuring the concept under study. In addition, the instruments made must be assessed by experts (judgment), both in content knowledge and practical experience so that the instruments made become intact and in accordance with concepts and practices in the field.

In addition to the errors that occur above, researchers usually discard invalid items, this is indeed an easy alternative but needs to be reviewed so that the item can still be maintained by revising and retesting. In conducting instrument testing it is necessary to consider the characteristics of the item, researchers also need to pay attention to factors that affect instrument validity such as the wording of test items, variations in the test instructions provided, variations in the testing environment, and variations in a person taking the test (Sutton, 2020).

Another common errors is that the items made in the instrument do not include favorable and unfavorable, actually this is very important to do so that the instrument made has a good balance and strong consistency. In addition, when looking at reliability and validity it needs to be tested on a wider range of subjects, so that this can be seen the strength and consistency of the instrument, because drawing conclusions depends on a valid and strong instrument.

According to Ghozali (2021), emphasizing the importance of the right instrument in measuring concepts and variables in research. The use of valid and accurate instruments is crucial in ensuring the success and accuracy of quantitative research results. However, some scientific articles present serious shortcomings in the absence of information regarding the validity and reliability of the instruments used. The validity and reliability test scores are the main determinants in assessing the quality of the instrument. Their presence in a scientific article is essential as they provide readers with a thorough understanding of the published research results. When this information is not included, it not only decreases the depth of the reader's understanding, but also reduces transparency and scientific integrity from the point of view of the validity of the research results. Therefore, it is important to emphasize that the inclusion of validity and reliability test scores is an aspect that should not be overlooked in a scientific article. This information not only helps readers comprehensively understand the research results, but also ensures scientific accountability for the validity and reliability of the research presented. Thus, the existence of instrument validity and reliability information is a solid foundation in building integrity and trust in a scientific context. Researchers also need to carry out complete stages of reliability testing by looking at judgment validity, content and construct validity, including favorable and unfavorable items, testing on a wide subject/sample, paying attention to various characteristics in an item. This stage is the basis for researchers in drawing conclusions, in quantitative research this conclusion is based on reliable and valid instruments.

Some studies explain a lot related to testing the reliability and validity of instruments, but it is still rare to find research that analyzes how errors occur in testing the reliability and validity of instruments in quantitative research. This analysis was conducted on several studies that have been published both in national and international journals that include research in the field of guidance and counseling. This research will contribute to the education and development of more comprehensive quantitative research by considering various requirements such as testing the reliability and validity of the instrument

CONCLUSION

Based on the results of this study, there are several common errors that occur in testing reliability and validity in quantitative research in the field of counseling guidance, from 27 articles reviewed, there are 9 common errors including not including reliability and validity, not doing iteration and revision on unreliable items, not doing content validity analysis, not doing construct validity analysis, mismatching the instrument with the characteristics of the item, the absence of judgment validity, not describing favorable and unfavorable items, limited samples on the instrument, and construct validity that is

doubtful and needs to be done reliability testing on a wide scale. These common errors should be anticipated by researchers in conducting quantitative research, especially in the field of guidance and counseling. This study provides a comprehensive overview of common errors that occur in reliability and validity testing that can be used as evaluation material for other researchers conducting quantitative research.

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