

ORIGINAL SCIENTIFIC PAPERS

The Difficulty of Standardizing the Tester in the Physical Fitness Test in the Indonesian Air Force

Samsul Arifin¹, Bambang Subali², Siswantoyo² and Jefri Maliool³

¹Yogyakarta State University, Graduate School, Yogyakarta, Indonesia, ²Yogyakarta State University, Lecturer of Graduate School, Yogyakarta, Indonesia, ³Lecturer of Manado State Christian Institute, Manado, Indonesia

Abstract

The physical fitness test is a method to determine physical abilities whose results are also very much determined in the measurement process carried out by the tester. This study aimed to determine the difficulty the tester has in meeting certain standards in measuring physical fitness in the Indonesian Air Force. This research method uses a qualitative method with a phenomenological approach through interviews with 15 testers. This qualitative data were analysed by referring to the phenomenological qualitative research steps of Moustakas and Cresswell. This study indicates difficulties in standardizing the tester in carrying out physical fitness tests in the Indonesian Air Force due to educational backgrounds, both in general education and military education, as well as corps, rank, and experience of different testers. Moreover, it was also found that there was also a lack of understanding of procedural mastery both in administration, measurement process procedures, and procedures for assessment and reporting of physical fitness test results. Continuous training of the tester is required to improve and monitor the tester's ability.

Keywords: *difficulty, standardization, tester, physical fitness test*

Introduction

Physical fitness is a primary asset for a member of the military and has a linear correlation with the success of the task, so there is a need for regular and continuous improvement and maintenance of physical fitness. The importance and magnitude of the influence of physical fitness on the results of one's work result in many governments and private institutions requiring a certain level of physical fitness as an aspect of work performance assessment, certification, and professional licensing. This also occurs in many military and service education institutions that require a certain level of physical fitness as one of the selection requirements to be accepted as a student or to attend education (Castelli, Hillman, Buck, & Erwin, 2007; TNI AU, 2019). In connection with the assessment of the physical fitness of military personnel, of course, accurate data is needed that is obtained through valid and reliable measurements.

The process of measuring physical fitness quantifies the

quality of a person's physical fitness. According to D'Isanto, D'Elia, Raiola and Altavilla (2019), the assessment produced through measurements on a physical fitness test determines a person's anthropometric and psychomotor profiles used to help determine the objectives required in the training programme. Furthermore, measurements on a physical fitness test are needed to produce data, to monitor the physical development of coaching and in the context of the selection, to indicate risk factors, to evaluate physical exercise, and to determine the type and dose practice.

According to Bompa, Tudor and Haff (2009), the aspects that must be measured in physical health include strength, endurance, speed, flexibility, and coordination. There are two measurement methods in a test to obtain data: by using measuring instruments and without measuring instruments, which in the measurement process is carried out purely through observation by the tester, including the interpretation of the results. While



Correspondence:

S. Arifin

Yogyakarta State University, Graduate School, Yogyakarta 55281, Indonesia

E-mail: samsularifin.2018@student.uny.ac.id

the form of physical fitness tests that are often used, according to Fox (1988), Piscopo and Baley (1981), and the Indonesian Air Force (2019), consists of a 2.4 km running test for 12 minutes for general endurance, pull up tests, push-ups, sit-ups, to determine the endurance and muscle strength and the shuttle run test is used to measure speed and agility. Based on the types and forms of the various tests, there is a need for guidelines that become the basis for conducting physical fitness tests, using equipment, and more technically in the measurement process.

In organizing a physical fitness test, a tester must always refer to the established standard procedure (SOP). In the use of equipment, testers must master the equipment to be used both in terms of its function and how to operate it. Meanwhile, other measurements do not use the equipment and only use the results of the tester's observations to provide a right and wrong decision, which directly affects the measurement result score. Based on the form of the test and the equipment used in the physical fitness test, it shows that the tester's ability is very influential in carrying out measurements and assessments.

The difference in the quality of the testers makes it possible to have differences in the physical fitness test result data. The ability of testers is influenced by many factors, including physical fitness testers in military institutions. In military institutions that apply a hierarchy of ranks, seniority, corps, and others, of course, that ability can be one of the factors that determine the quality of the tester to be different. Research conducted by Arifin, Retnawati and Putranta (2020) regarding the value of the agreement between physical fitness testers in the Indonesian Air Force in making measurements shows that the agreement between testers is still not good and produces different data in measuring the same testee. The same research conducted by Mathews (2013) and Fielitz, Coelho, Horne and Brechue (2016) shows that the coefficient between testers on the measurement of the push-up test remains inadequate. The difficulty of the testers on the physical fitness test using observations when compared to the test with the aid of measuring equipment

is not the same. This is also supported by the research results of Baumgartner, Oh, Chung and Hales (2002) and Baumgartner and Ghaunt (2005), which states that the difficulty in a skills test is interpreting the results of the testers' observations into a decision appraisal. Based on the problems in the field related to differences in measurement results that often arise, it is necessary to conduct research that can show what aspects affect the quality of the tester and why there are difficulties in standardizing the physical fitness tester.

Method

This study uses a qualitative phenomenological approach. A qualitative approach is used to determine the difficulties in standardizing the tester's activities. In this study, participants consisted of 15 testers who were male with an age range of 25–50 years who were still active in the physical fitness test. The qualitative research procedure was carried out by interviewing testers selected to be respondents with open-ended questions with interview protocol guidelines. Data analysis from interviews in qualitative research were analysed by referring to the steps of Moustakas (1994) and Creswell (2018), which include organizing data; describing, clarifying and interpreting data into codes and themes; interpreting data; presenting and visualizing data.

Results

The study results used a qualitative approach to obtain data on the educational background that directly or indirectly affected the tester's ability to carry out physical fitness tests. The data obtained from the respondents were grouped into two parts: the background of the testers and the mastery of procedures in carrying out physical fitness tests.

Educational Background and Experience of Tester

The results of the tester's educational background and experience (seniority) to be a tester can be shown in Table 1.

Table 1. Background of the Tester

Description	Indicator
Tester skills education (profession)	Not all testers have attended skills education, courses, and upgrades related to the profession as a tester
General education	The formal education of the tester varies from junior high, high school, and college
Experience as a Tester	Experience being a variation tester (junior to senior tester)

The data generated in Table 1 shows that the testers have various backgrounds, both on expertise and general backgrounds. Skills education, which is intended to provide knowledge and skills regarding the implementation of physical fitness tests, also varies where some obtain formal training through training, upgrading, and some testers have not or even did not get provisioning. Moreover, some testers study independently

to gain knowledge and skills. Meanwhile, concerning tester experience, some testers have experience from junior to senior.

Mastery of Procedures

Based on the results of interviews with respondents about mastery of administrative procedures, the data can be summarized in Table 2.

Table 2. Mastery of Administrative Procedures

Description	Indicator
Mastery of test administration	The use of forms is not the same The input of data by the tester varies
Mastery in giving instructions/directions before the test	The ability to direct/explain procedures for implementing tests is not systematic and unequal
Teste arrangement in the test group	The understanding of the tester about setting the number of testes in one group varies

Table 2 shows a very diverse mastery of the procedure by the testers, including those who have not mastered the procedure for implementing the physical fitness test. The procedure for the physical fitness test includes three stages: the procedure at the preparation stage, the implementation stage, and the assessment or evaluation stage. The preparation stage includes knowledge and skills, such as organizing participants into test groups, preparing assessment forms, explaining the test

to participants, and warming up. The implementation stage includes the use of test equipment, correct interpretation of movements, and other aspects during implementation. The assessment stage includes the tester's ability to manage field data into the final physical fitness test data for each participant and their categories.

The results of interviews with testers regarding mastery of measurement procedures are summarized in Table 3.

Table 3. Mastery of Measurement Procedures

Description	Indicator
Understanding and implementing warming up	Understanding the adequacy of warming up is not yet understood
Mastery of using tools	Mastery of different testers in using the split facility on the stopwatch The difference in reaction speed in the operation of the stopwatch Different understandings and interpretations of the movement
The tester's measuring ability	The tester's different understanding of rest requirements during movement and between test items Different testers' understanding of correct place in measurement/assessment There is a tester subjectivity in measuring and assessing

The results of other interviews with testers regarding mastery of assessment and reporting procedures obtained data, which are summarized in Table 4.

Table 4. Mastery of Assessment and Reporting Procedures

Description	Indicator
Mastery in calculating physical fitness values	Not all testers understand the formula for calculating the value of physical fitness. Not all testers can process data using a computer. Different tester knowledge about the physical fitness value category.

Discussion

Educational Background and Experience of Tester

Status testers with different formal backgrounds have the ability to understand the knowledge and mastery of the concept of a different physical fitness test. The higher the level of education of a person, the more likely there is a tendency to master the concept of knowledge about his job, and this mastery cannot be separated from the mastery of the material and skills that soldiers must have (Mareike et al., 2013).

Likewise, the tester's experience will affect foresight, accuracy, and speed in deciding an assessment. Supriadi (1998) states that the longer a person is in the profession, the higher the level of professionalism. The impact of experience will be seen in completing work and someone who already has significant experience or is more able to master and have a strategy in completing the task. However, if these conditions are not developed and do not try something new, the experience will decrease (Rice, 2010). According to Sawastha and Sukotjo (1998), the indicators of experience are education, training, and years of service. In this study, testers had different backgrounds of experience from three years and more than 25 years. Foster (2001) states that the indicator for determining a person's ability to complete his job is the length of the work period. These different conditions of experience certainly impact different abilities, such as accuracy and speed in making decisions related to the development of knowledge and technology. Another condition related to the background of the testers is the existence of a hierarchy of ranks and positions, which can directly or indirectly affect the objectivity of the tester in making decisions on measurement results.

Mastery of Procedures

Mastery of procedures is imperative for testers to understand and use procedures as guidelines for preparation, planning, implementation, and evaluation. Arifin, Zamroni and Subali (2020) state that in a physical fitness test, to produce a valid and reliable test begins with the fulfilment of procedures starting from the planning stage, the implementation stage, and the termination stage (sometimes consisting of assessment and evaluation). In the control of administrative procedures, it can be seen that the tester has a variety of understandings about how to organize large numbers of participants, to determine which individuals are not eligible to take the test, to prepare assessment forms, and to explain test procedures to testees. In the mastery of measurement procedures carried out at the implementation stage, obstacles were found in the form of how the tester positioned himself appropriately to be able to see the testee's movement, the provision of time breaks between test items, provisions for rest during movement, use of test kits, and interpretation in determining the correct movement. Another obstacle was the assessment and reporting procedures to determine the final result of the physical fitness test, namely that some testers were unable to explain the assessment formulas and data processing either manually or using data processing programmes.

Foster (2001) argues that what can describe a person's ability to complete work is the level of knowledge that refers to concepts, principles, procedures, other required information, levels of knowledge, and skills. One of the functions required of a procedure is to provide facts or useful ways to act and

to achieve predetermined goals. Testers who understand and master procedures appear to be more proficient in completing work than those who do not understand procedures or even do not use procedures (Park, 2009). According to Winnick and Short (2014), the responsibility of a tester in a physical fitness test is to measure the physical fitness level of a person by managing the test items that are selected appropriately, providing recommendations for test administration, including the necessary equipment, assessment, testing/training, test modifications, and safety guidelines and precautions. Another responsibility is to evaluate the level of physical fitness associated with comparing their results on the recommended or optional test items with the standard and referenced fitness zone criteria suitable for them.

Furthermore, Wursanto (2005) and Moekijat (1989) state that procedures are guidelines for the right way to carry out activities. One of the reasons for the failure of a job is the loss

of certain information due to the eliminated stages of the procedure so that they cannot make the right decision (Vanlehn, 1990). The tester must understand and master what is being prepared and done, both before and after the test.

Conclusion

In a physical fitness test, the role of a tester is indispensable for smooth implementation and obtaining reliable and accurate data. In a physical fitness test involving many testers, the difficulty that arises is to standardize the testers involved. These difficulties can be caused due to the tester's background and mastery of different test procedures. It is necessary to develop a measuring instrument to assist testers in observing movement on physical fitness tests and the need for alternative tests to measure physical fitness, especially muscle strength and endurance. Continuous tester training is required to improve the ability of testers and minimize non-standard tester quality.

PPM.

Acknowledgements

We are grateful to the Postgraduate Programme Lecturer, Yogyakarta State University, and the Head of the Physical Development Sub-Department of the Indonesian Air Force's Health Service for guiding this research.

Conflict of Interest

The authors declare that there are no conflicts of interest.

Received: 12 December 2020 | **Accepted:** 07 February 2021 | **Published:** 01 October 2021

References

- Arifin, S., Retnawati, H., & Putranta, H. (2020). Indonesian air force physical tester reliability in assessing one-minute push-up, pull-up, and sit-up tests. *Sport Mont* 18(2), 89–93. doi:10.26773/smj.200614
- Arifin, S., Zamroni, & Subali, B. (2020). Literature review on the implementation of "sop" work procedures for valid and reliable physical ability test results. *Sport SPA*, 17(1), 21–29.
- Artero, E. G., España-Romero, V., & Castro-Piñero, J. (2011). Reliability of field based fitness tests in youth. *International Journal of Sports Medicine*, 32, 159–619.
- Baumgartner, T. A., & Gaunt, S. J. (2005). Construct related validity for the Baumgartner modified pull-up test. *Measurement in Physical Education and Exercise Science*, 9(1), 51–60. doi: 10.1207/s15327841mpee0901_4
- Baumgartner, T. A., Oh, S., Chung, H., & Hales, D. (2002). Objectivity, reliability, and validity for a revised push-up test protocol. *Measurement in Physical Education and Exercise Science*, 6(4), 225–242
- Bompa, T. O., & Haff, G. G. (2009). *Periodization: Theory and methodology of training*. [5-th Edition]. Champaign, IL, USA: Human Kinetics.
- Castelli, D. M., Hillman, C. H., Buck, S. M., & Erwin, H. E. (2007). Physical fitness and academic achievement in third-and fifth-grade students. *Journal of Sport and Exercise Psychology*, 29(2), 239–252.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry And Research Design* (4th ed). USA: Sage Publications.
- D'Isanto, T., D'Elia, F., Raiola, G., & Altavilla, G. (2019). Assessment of sports performance: Theoretical aspects and practical indications. *Sport Mont*, 17(1), 79–82. doi: 10.26773/smj.190214
- Fielitz, L., Coelho, J., Horne, T., & Brechue, W. (2016). Inter-rater reliability and intra-rater reliability of assessing the 2-minute push-up test. *Journal of Military Medicine*, 181(2), 167–175.
- Foster, B. (2001). *Coaching for employee performance improvement*. Jakarta: PPM.
- Fox, E. L. (1988). *Physiological basis of physical education on athletics*. Philadelphia: Saunders College Pub.
- Mareike, K., Uta, K., Jurgen, B., Dirk, R., Thamar, V., & Axinja, H. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805–820.
- Mathews, D. K. (2013). Comparison of testers and subjects in administering physical fitness index tests. *Physical Education and Recreation*, 24(4), 442–445. doi: 10.1080/10671188.1953.10761987
- McManis, B. G., Baumgartner, T. A., & Wuest, D. A. (2000). Objectivity and reliability of the 90° push-up test. *Measurement in Physical Education and Exercise Science*, 4(1), 57–67.
- Miller, D. K. (2002). *Measurement by the physical educator 4th edition*. San Francisco: McGraww Hill.
- Miller, D. K. (2002). *Measurement by the physical educator 4th edition*. San Francisco: McGraww Hill.
- Moekijat (1989). *Personnel Management*. Bandung: Mandar Maju.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: SAGE Publications.
- Park, J. (2009). *The complexity of proceduralized tasks*. London: Springer-Verlag Limited.
- Piscopo, J., & Baley, J. A. (1981). *Kinesiology the science of movement*. New York: John Wiley & Sons, Inc.
- Rice, J. K. (2010). *The impact of teacher experience examining the evidence and policy implications*. Washington, D. C.: National Center for Analysis of Longitudinal Data in Education Research.
- Supriyadi, D. (1999). *Elevating Teacher's Image and Dignity*. Yogyakarta: Adicita Karya Nusa.
- Swastha, B., & Sukotjo, I. (1998). *Introduction to Modern Business*, 3rd Edition, Yogyakarta: Liberty.
- TNI AU. (2019). *Indonesian Air Force. (2019). Decree of the Air Force Chief of Staff Number Kep / 326 / XI / 2019 dated 28 November 2019 concerning the Technical Guideline for Physical Ability Tests in the Indonesian National Army Air Force*. Jakarta: Mabesau
- Vanlehn, K. (1990). *Mind bugs the origins of procedural misconceptions*. London: MIT Press.
- Winnick, J. P., & Short, F. X. (2014). *Brockport physical fitness test manual: A health-related assessment for youngsters with disabilities (2nd ed)*. United States: Human Kinetics.
- Wursanto, I. G. (2005). *Fundamentals of organizational science*. Yogyakarta: Penerbit Andi.