Health-Related Fitness Knowledge and Its Relation to College Student Physical Activity

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Abstract. One area of studies that has been done in relation to improving physical activity (PA) is Health-related fitness knowledge (HRFK). The aim of this study was to examine HRFK of a college student and its relation to PA. An internet-based survey was conducted. The participants were 246 sophomore undergraduate students from Universitas Pendidikan Indonesia. HRFK was assessed using a test consisting of 21 multiple choice items. PA was assessed using International Physical Activity Questionnaire short form (IPAQ-SF). The result shows that HRFK college student is low. There is no significant correlation between HRFK and PA college student. Three is a slight possibility that knowledge of health-related fitness does not make someone more active physically.

1. Introduction
Low levels of PA have been widely implicated as the behavioral causes for the rising prevalence of obesity and overweight [1]. It is also identified as a risk factor for global mortality (6% of deaths globally). Overweight and obesity is responsible for 5% of global mortality [2]. PA is widely believed to confer important health benefits. Some studies show that PA is positively related to cardiovascular fitness and muscular strength, lower body fat, a decrease of heart disease risk, bone density and mental health [3–8]. Unfortunately, PA sharply decreases after different life stages, particularly in the beginning university education [9].

Many interventions have been designed by researchers to promote college student’s improvement in PA levels. The intervention provides a specifically designed university PA class [10], brochures, a classroom presentation, or an in-person demonstration [11], website [12], even using social media, Facebook and Twitter [13] and text messaging [14]. However, it has had only a limited impact [15]. Thus, one underlying problem with which researchers have struggled is the long-term impact and sustainability of interventions.

One area of studies that has been done in relation to improving physical activity is Health-related fitness knowledge. HRFK has successfully predicted PA levels [16]. Other study shows that students who scored higher on the HRFK test also reported higher levels of PA [17]. But, in another study show that no significant relationship between HRF knowledge and PA [18]. This inconsistency invites the researcher to examine the relation between HRFK and PA.
2. Method

2.1. Participants
The study was conducted at the Universitas Pendidikan Indonesia. A total of 246 sophomore undergraduate students (65 male, 181 female) were volunteer to the study by filling internet-based questionnaire survey.

2.2. Procedures
The internet-based questionnaire was administered to participants. Students were invited to answer the questionnaire during their break or free time.

2.3. Instruments
HRFK was measured by a 21 multiple choice test based on college students’ knowledge of the five components of health-related fitness (cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition).

PA level was measured using International Physical Activity Questionnaire - Short Form (IPAQ-SF). Participants were asked to report the number of days and the duration of the vigorous (V), moderate (M), walking activity (W), and a combined total physical activity score. Questionnaires were translated from English in Bahasa Indonesia. All scores were expressed in MET-minutes/week (www.ipaq.ki.se). The following values have been used for the analysis of IPAQ data:
- V MET = 8.0 x walking minutes’ x walking days;
- M MET = 4.0 x walking minutes’ x walking days;
- W MET = 3.3 x walking minutes’ x walking days;
- Total PA MET = sum of V + M + W MET minutes/week scores.

3. Results and Discussion
The average of Vigorous MET, Moderate MET, Walking MET and Total Physical Activity MET were 1429.9; 1190.65; 1609.15 and 4229.72 MET-minutes/week. It can be said that the average of the physical activity level of college students are on high level. There were 93.8% of samples who has weekly physical activity level high, 63.7% were moderate and 11% were low. Meaning that the majority of participant physical activity were qualitatively and quantitatively appropriate, both intensity and duration meet the general guidelines for Health.

| Tabel 1. SPSS Output of Descriptive Statistics, One Way ANOVA and Pearson Correlation |
|---------------------------------|---------------|---------------|---------------|---------------|
| Physical Activity Level        | Descriptive  | ANOVA         | Pearson        |
|                                | Statistic     | F             | Sig.          | r             | Sig.          |
| HRFK HIGH                      | Mean          | 38.6198       | 4.977         | .027          | -0.004        | 0.949          |
|                                | Std. Deviation| 12.43755      |               |               |               |               |
| MODERATE                       | Mean          | 39.6872       |               |               |               |               |
|                                | Std. Deviation| 11.31690      |               |               |               |               |
| LOW                            | Mean          | 37.7841       |               |               |               |               |
|                                | Std. Deviation| 9.04820       |               |               |               |               |

The average score on the HRFK was 39 out of 100 which mean that on average college students failed the test. One way ANOVA reported no significant differences among PA level (High: 38.6 ± 12.4; Moderate: 39.7 ± 11.3; Low: 37.8 ± 9). Also, There was no correlation between HRFK and PA Level ($r$=-0.04, $P > 0.05$).
HRFK of a college student was too low (39 of 100). Meaning that physical Education on their earlier Education need to be evaluated. Physical education that is responsible for giving knowledge about health-related fitness. Physical education should contribute to their knowledge of fitness. Even in the physical education curriculum to include fitness into one program.

The results showed that no significant relationship exists between HRFK with the PA. This is in line with research conducted by Keating et al. (2009) Examined the relation between HRFK with the PA at a Large U.S. Southern State University [18]. These results have two meanings. First, a person who has more knowledge of health-related fitness not necessarily want to do more PA. Their knowledge did not necessarily motivate them to perform physical activity. Second, a person who has less knowledge of health-related fitness can only do physical activity in accordance with the recommendation, but its impetus for physical activity does not come from knowledge about health, rather than doing physical activity for fun.

4. Conclusion
There is no significant correlation between HRFK and PA college student. Three is a slight possibility that knowledge of health-related fitness does not make someone more active physically. It could be that their knowledge of health-related fitness does not make someone more physically active. What should be done is to make the people love physical activity.

References
[1] Meckel Y, Galily, Y, Nemet, D and Eliakim, A 2011 Changes in weight indexes and aerobic fitness of physical education students over three years of college Journal of Human Sport Exercise 6(1) 112–21
[2] World Health Organization Global recommendations on physical activity for health Geneva: World Health Organization WHO Press; 2010 60 p
[3] Creber R M M, Smeeth L, Gilman R H and Miranda J J 2010 Physical activity and cardiovascular risk factors among rural and urban groups and rural-to-urban migrants in Peru: a cross-sectional study Revista Panamericana de Salud Pública 28(1) 1-8
[4] Mazis N, Papachristou D J, Zouboulis P, Tyllianakis M, Scopa C D and Megas P 2009 The effect of different physical activity levels on muscle fiber size and type distribution of lumbar multifidus A biopsy study on low back pain patient groups and healthy control subjects Eur J Phys Rehabil Med 45(4) 459-467
[5] Morano M and Colella D 2012 Physical activity for the prevention of childhood obesity: an overview of key research challenges for physical education Acta Facultatis Educationis Physicae Universitatis Comenianae 52(2) 49-59
[6] Pitsavos C, Kavouras S A, Panagiotakos D B, Arapi S, Anastasiou C A, Zombolos S and Stefanadis C (2008) Physical activity status and acute coronary syndromes survival Journal of the American College of Cardiology 51(21) 2034-2039
[7] FitzGerald L and Carpenter C 2010 Bone mineral density results influencing health-related behaviors in male athletes at risk for osteoporosis Journal of Clinical Densitometry 13(3) 256-262
[8] Abu-Omar K, Rütten A and Lehtinen V 2004 Mental health and physical activity in the European Union Sozial-und Präventivmedizin/Social and Preventive Medicine 49(5) 301-309
[9] Kwan M Y, Cairney J, Faulkner G E and Pullenayegum E E 2012 Physical activity and other health-risk behaviors during the transition into early adulthood: a longitudinal cohort study American journal of preventive medicine 42(1) 14-20
[10] Curry J, Jenkins J M and Weatherford J 2015 Focus on Freshman: Basic Instruction Programs Enhancing Physical Activity Physical Educator 72(4) 621
[11] Dougall A L, Swanson J N, Grimm J R, Jenney C T and Frame M C 2011 Tempering the decline in college student physical activity using informational interventions: moderating
effects of stress and stage of change Journal of applied biobehavioral research 16(1) 16-41
[12] Lu Y, Kim Y, Dou X Y and Kumar S 2014 Promote physical activity among college students: Using media richness and interactivity in web design Computers in Human Behavior 41 40-50
[13] Achen R M 2015 Using Facebook and Twitter to Encourage Physical Activity: Are College Students Connecting With Campus Recreation on Social Media? A Pilot Study Recreational sports journal 39(2) 132-143
[14] Yan A F, Stevens P, Wang Y, Weinhardt L, Holt C L, O'Connor C and Luelloff S 2015 mHealth text messaging for physical activity promotion in college students: a formative participatory approach American journal of health behavior 39(3) 395-408
[15] Foster C, Hillsdon M, Thorogood M, Kaur A and Wedatilake T 2005 Interventions for promoting physical activity The Cochrane Library 1 1–3
[16] Ferkel R C, Judge L W, Stodden D F and Griffin K 2014 Importance of health-related fitness knowledge to increasing physical activity and physical fitness Physical Educator 71(2) 218
[17] Thompson A and Hannon J C 2012 Health-related fitness knowledge and physical activity of high school students Physical Educator 69(1) 71
[18] Keating X D, Castro-Piñero J, Centeio E, Harrison Jr L, Ramirez T and Chen L 2010 Health-related fitness knowledge and its relation to student physical activity patterns at a large US southern state university The ICHPER-SD Journal of research in health, physical education, recreation, sport and dance 5(2) 3