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Exercise Behaviour Analysis of Universitas Negeri Semarang Sports Sciences Students

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***Abstract*—This is descriptive study, was purposed to analyze the level of self-efficacy; factors that affect the processes of change, and the level of decisional balance related to physical activity. Population in this study is consisted of all academic year, the sample size (n=256) was identified according to Kreicie and Morgan, male 73.8% female 26.2%, age 17-23 y.o (19.89±1.316). A set of questionnaires (divided into questions related to demographic profile and question of self-efficacy, processes of change, and decisional balance) was used. Data was analyzed by using The SPSS Version 21. Mostly respondents feel not confident to participate in regular exercise when they are in bad mood, tired, do not have time, bad weather, and on vacation. Self-liberation is the strongest experiential affecting factors to the processes of change related to physical activity, it followed by counter conditioning, reinforcement management, helping relationships, and stimulus control. In other hands dramatic relief is the most important behavioural factor, followed by social liberation, consciousness raising, environmental reevaluation, and self-reevaluation. 81% respondents have good commitment to do physical activity, 19% respondents do not have the commitment. Majority of participants have high commitment to engage physical activity, but their willingness is affected mostly by mood, while their behaviour change affected by self-liberation and dramatic relief.**

Keywords—sports psychology, exercise behaviour, physical activity

I. INTRODUCTION

Physical inactivity is believed become the major causes of early death in developing countries, also strongly linked with many degenerative diseases such as obesity, diabetes, cardiovascular disease, and cancer [16]. In contrast, being physically active is associated with health status in both physiological and psychological and also potentially to have longer life spans [11]. The relationship between physical activity and health has been documented very well that better health as a result from being active physically [10, 15]. Nonetheless, there are could be so many factors that affecting the participation to do sport, exercises or even physical activity, and that could be too complex and difficult to assess as they are involved psychological stages. However, the change of exercise behaviour can be analyzed by using Transtheoretical Model (TTM).

II. MATERIALS AND METHODS

This is descriptive study. Population in this study is all sports sciences students (year one to year four), FIK UNNES. Samples n=256 were identified according to Kreicie and Morgan [9]. Data were collected by using a set of questionnaires which was divided into two parts, first part contains questions related to demographic profile, and second part contains TTM questionnaires of self-efficacy, processes of change, and decisional balance.

Self-efficacy for Exercise. A five-item measure of self-efficacy for exercise participation is administered [13]. It was designed to measure one's confidence in his ability to persist in exercising in various situations. Self-efficacy was measured by asking about the extent of their confidence in their ability to participate in physical exercise outside of school on a 5-point Likert-type scale, which ranged from 1 (not at all confident) to 5 (very confident). An example of an item was given: ''I am confident that I could be physically active, when it is raining''. The confidence level for each item should increase with increasing efficacy. High scores indicate a high level of self-efficacy for exercise. The participants in the current study were asked to rate their self-efficacy related to moderate, leisure-time physical activity for 30 minutes at least 5 days of the week.

Processes of Change. Exercise processes of change questionnaire was administered [12]. This scale has 40 items and consists of 10 sub-scales measuring 5 experiential and 5 behavioural processes of change that people use in making changes in sedentary behaviour. Behavioural processes are (counter conditioning, helping relationships, reinforcement management, stimulus control, and self-liberation), and cognitive–experiential processes are (consciousness raising, dramatic relief, environmental reevaluation, social liberation, and self-reevaluation). As the intervention of this research has been designed for sedentary individuals, it exclusively focused on cognitive processes. Considering this point researcher divided this instrument into two categories namely cognitive and behavioural processes. Sedentary students are required to think back about the previous month and to rate the frequency of occurrence of each item on a 5-point Likert scale ranging from 1 (never) to 5 (repeatedly).

Decisional Balance. Decisional balance (DB) was assessed using the decisional balance questionnaire from Marcus which was modified to be 15 item instruments with 10 pro-exercise items and 5 con-exercise items [12]. The instrument assesses the respondent's perceived positive and negative aspects of exercise. Decisional balance contains two sub dimension including pros and cons scale. Decisional balance (DB) was then represented as the score on the "Cons" scale subtracted from the score on the "Pros" scale (DB=Pros-Cons). Pros include health and fitness, appearance, psychological well-being, and social interaction, whereas cons include lack of time/interest, effort, worries about appearance, and social costs.

The Statistics Package for Social Science (SPSS) for Windows version 21 was used to analyze the data. The descriptive analysis (frequency, percentage, mean and standard deviation) is employed to determine the participants' demographic distribution. Frequency also used to determine the distribution of the participants across self-efficacy, processes of change, and decisional balance in physical activity behaviour.

III. Results and Discussions

Demographic data shows that there are 256 participants in this study, consists of 189 males (73.8%) and 67 females (26.2%). The youngest participants were 17 y.o (n=3), and the oldest were 23 y.o (n=5). While the most participants were 20 y.o (n=70), the average for all was 19.89±1.316 y.o. Further detail about the age distribution is in table I.

TABLE I. AGE DISTRIBUTION OF PARTICIPANT

Age (y.o)	Frequency	Percent (%)	Valid Percent	Cumulative Percent
17	3	1.2	1.2	1.2
18	37	14.5	14.5	15.6
19	65	25.4	25.4	41.0
20	70	27.3	27.3	68.4
21	48	18.8	18.8	87.1
22	28	10.9	10.9	98.0
23	5	2.0	2.0	100.0
Total	256	100.0	100.0	X

TABLE II. THE LEVEL OF SELF-EFFICACY

Self-efficacy	n=256		Not Confident		Slightly Confident		Confident		Very Confident		Extremely Confident	
			Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
When I am tired	Male	189	47	27.4	65	32.4	52	27.7	25	12.1	0	.4
	Female	67	23		18		19		6		1	
When I am in a bad mood	Male	189	69	35.6	51	30.1	43	23.0	18	7.8	8	3.5
	Female	67	22		26		16		2		1	
When I don't have the time	Male	189	35	20.7	71	34.4	60	34.0	23	10.9	0	0
	Female	67	18		17		27		5		0	
When I am on vacation	Male	189	13	7.1	13	6.6	50	24.6	72	41.4	41	20.3
	Female	67	5		4		13		34		11	
When it is raining or snowing	Male	189	10	5.9	25	12.9	74	38.7	66	35.5	14	7.0
	Female	67	5		8		25		25		4	

A belief of somebody's capability to perform a specific task is known as self-efficacy or confidence [6]. In this study, the highest level of self-efficacy of Universitas Negeri Semarang sports sciences students to participate in physical activity/exercise/sport is when they are on vacation, while the lowest level is when they are in bad mood. Interestingly, bad weather is not really matter for them to do physical activity compared with have no time and or feeling tired, (table II).

Behavioural engagement is directly influenced by self-efficacy by affecting the goals set, the ability to persist in order to overcome the obstacles, and their capacity to handle stresses [2]. Furthermore, the integration between goal setting theory and social learning theory is believed affected by self-efficacy, because it plays an important role in the environment, cognitive, and behaviour interaction process [6].

Self-efficacy actually acts as an active precursor of self-concept development. Self-concept could be defines as the totality of the individual's thoughts and feelings having reference to himself as an object. Self-concept is formed through experiences with the environment and is influenced especially by environmental reinforcements and significant others [1]. Here are the differences between self-concept and self-efficacy, (table III).

TABLE III. COMPARISON BETWEEN SELF-CONCEPT VERSUS SELF-EFFICACY, (ADOPTED FROM BONG & SKAALVIK, 2003)

No.	Comparison Dimensions	Self-concept	Self-efficacy
1	Working definition	Knowledge and perceptions about oneself in achievement situations	Convictions for successfully performing given physical task at designated levels
2	Central element	Perceived competence	Perceived confidence
3	Composition	Cognitive and affective appraisal of self	Cognitive appraisal of self
4	Nature of competence evaluation	Normative and ipsative	Goal-referenced and normative
5	Judgment specificity	Domain-specific	Domain-specific and context-specific
6	Dimensionality	Multidimensional	Multidimensional
7	Structure	Hierarchical	Loosely hierarchical
8	Time orientation	Past-oriented	Future-oriented
9	Temporal stability	Stable	Malleable
10	Predictive outcomes	Motivation, emotion, and performance	Motivation, emotion, cognitive and self-regulatory processes, and performance

TABLE IV. AFFECTING FACTORS TO THE PROCESSES OF CHANGE RELATED TO PHYSICAL ACTIVITY

No.	Processes of Change	n=256		Stage									
				1		2		3		4		5	
				Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Consciousness Raising	Male	189	15	10.5	11	5.5	16	7.4	136	71.5	11	5.1
		Female	67	12		3		3		47		2	
2	Self-liberation	Male	189	2	1.2	0	0	1	0.4	184	97.7	2	0.8
		Female	67	1		0		0		66		0	
3	Dramatic Relief	Male	189	5	3.1	0	0	0	0	178	93.8	6	3.1
		Female	67	3		0		0		62		2	
4	Environmental Reevaluation	Male	189	62	32.0	0	0	23	13.3	78	39.1	26	15.6
		Female	67	20		0		11		22		14	
5	Helping Relationship	Male	189	30	16.8	0	0	14	6.6	145	76.6	0	0
		Female	67	13		0		3		51		0	
6	Stimulus Control	Male	189	23	12.1	20	11.7	73	37.5	28	14.1	45	24.6
		Female	67	8		10		23		8		18	
7	Counter Conditioning	Male	189	2	1.2	4	2.3	8	5.1	173	89.1	2	2.3
		Female	67	1		2		5		55		4	
8	Social Liberation	Male	189	4	1.6	5	3.5	12	6.6	29	13.7	139	74.6
		Female	67	0		4		5		6		52	
9	Self-reevaluation	Male	189	9	3.9	9	4.3	31	17.6	109	59.8	31	14.5
		Female	67	1		2		14		44		6	
10	Reinforcement Management	Male	189	1	0.4	0	0	0	0	188	99.6	0	0
		Female	67	0		0		0		67		0	

There are many motivational factors related to physical activity or exercise, and interestingly between male university students (enjoyment, challenge, social recognition, affiliation, competition and strength but also endurance) and female university students (stress and weight management, revitalisation, ill-health avoidance, positive health, appearance and nimbleness) they have their own motivation [4]. Moreover, a study by Hoare Erin in 2015, data from adults aged 25 y.o until 54 y.o shows that their motivations for physical activity are to lose or maintain weight, avoid or manage health condition, and improve appearance. Some gender differences were found with a greater proportion of females reporting lose or maintain weight as their main motivation for being physically active compared to males [8].

Self-liberation is the strongest experiential affecting factors to the processes of change related to physical activity, and followed by counter conditioning, reinforcement management, helping relationships, and the lack factor is stimulus control. In other hands dramatic relief is the most important behavioural factor that affecting the processes of change, and followed by social liberation, consciousness raising, environmental reevaluation, and self-reevaluation, (tabel 4).

Regardless from affecting factors related to physical activity, study from Castillo states that decisional balance and enjoyment to do physical exercise is mediated by the role of self-efficacy [14]. The term decisional balance could be defined as powerful strategy that could be used by someone to make a decision through consideration which consist possible options and an evaluation of the consequences (both negative and positive) of each option, and it is also involved in decision-making [3, 5]. This strategy allows someone to understand what decision they want to commit. From 256 respondents in this study, 81% respondent (n=207) from both male and female have high commitment to do physical activity, exercise or sports, while the rest 19% (n=49) respondent have low commitment.

When people have commitment, this state is perfect to meet the proper knowledge how physical activity could be optimized to get better health condition. Adults are strongly suggested to exceed the minimum recommendations for physical activity. Aerobic activity (endurance activity) has good effects on cardio-respiratory system. It should be done at least 30 minutes each day for 5 days each week (150 minutes in total), with moderate intensity, and high intensity at least 25 minutes each day for 3 days each week (75 minutes in total), this recommendation is in order to promote and maintain health. Besides endurance activity, strengthening activity is also important particularly for skeletal muscle health, bone and joint. Two days for each week is the minimum recommendation, include 8-10 exercises using major muscle groups [7].

IV. CONCLUSIONS

According to the results and discussion, authors conclude that majority of UNNES Sports Sciences Students have high commitment to engage physical activity, and their willingness to do the regular exercise is affected mostly by their mood. In the other hands, the strongest experiential affecting factor to the processes of change related to physical activity is self-liberation, meanwhile dramatic relief is the most important behavioural factor.

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