Health Enhancing Physical Activity Among University Students In ASEAN Member States

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Keynote address at FISU World Conference on Development through Sport, Taipei, 28 August 2017

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Background

The WHO (2016) "defines physical activity (PA) as;

"*any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits*".

GLOBAL RECOMMENDATIONS ON PHYSICAL ACTIVITY FOR HEALTH

World Health Organization
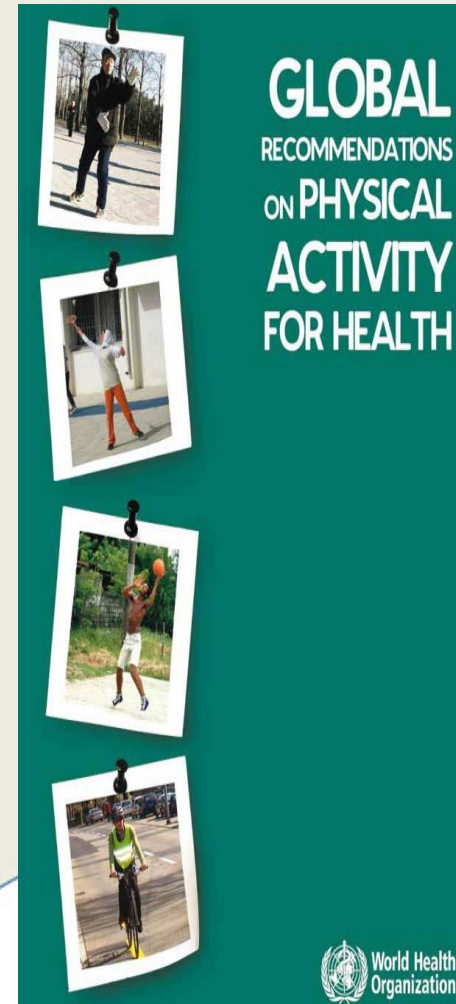
Background

- Health-enhancing physical activity recommendations (WHO, 2010) for <u>adults (18—64 yrs)</u>

- at least <u>150 minutes of moderate-intensity aerobic physical activity</u> per week, <u>or</u>

- <u>at least 75 minutes of vigorous-intensity aerobic physical activity</u> per week, or an equivalent combination throughout the week (MVPA).

- Aerobic activity at least 10 minutes' duration.

Background

For <u>additional health benefits</u>,

- moderate-intensity aerobic physical activity to 300 minutes per week, or

- engage <u>in 150 minutes of vigorous-intensity aerobic physical activity</u> per week, or

- an equivalent combination throughout the week (MVPA).

- <u>muscle-strengthening activities</u> should be carried out, involving major muscle groups, on ≥ 2 days per week."

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Background

In a study among university students from 23 low, middle and high income countries, 2013, only 58.6% engaged in health enhancing physical activity (Pengpid et al., 2015)

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Background

Factors have been found to be associated with health-enhancing PA among university students.

❖ being <u>male</u> (Hallal et al., 2012),
❖ <u>younger</u> students (Nelson et al., 2007),
❖ <u>higher socioeconomic status</u> (Nelson et al., 2007). .

Background

Health status and cognitive factors

❑ having a healthy body mass index (BMI) (Dinger et al., 2014),

❑ having a "perception that their body weight was about right" (Seo et al., 2007),

❑ positive perception of general health (Dinger et al., 2014), and

❑ cognitive factors such as health risk awareness and health benefits beliefs (El Ansari et al., 2014; Steptoe & Wardle, 1992).

Background

Behavioural factors for health-enhancing PA:

❖ adequate daily fruit (and vegetable) consumption (Seo et al., 2007, etc.),

❖ not smoking cigarettes (Dinger et al., 2014; etc.),

❖ higher levels of alcohol consumption (Seo et al., 2014; etc.).

Aim

To investigate <u>health-enhancing PA among university students</u> in nine ASEAN countries (Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore Thailand, Vietnam).

Methods

- *Sample and procedure*
- A cross-sectional quantitative survey
- About 800 undergraduate students per university/ country

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Measures

1. <u>Physical activity</u> *(6* items) in the "International Physical Activity Questionnaire" (IPAQ) (Craig et al., 2003).

- *During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling? "*

- Minutes per week in each category (vigorous, moderate, walking) are multiplied with <u>metabolic equivalents (MET)</u> resulting in a physical activity estimate expressed in total MET-minutes/week." (IPAQ, 2016).

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Measures

- Participants were classified into 3 levels of PA (low, moderate or high) (MET)-minutes/week in each category (IPAQ, 2016).

- The moderate level = met the minimum recommended level of PA for health,

- The high PA level = achieved more than the minimum recommended level" (IPAQ, 2016).

Measures

2. Health status and cognitive factors

- *Anthropometric measurements*
- *Body weight perception*
- *Self-rated health status*

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Measures

3. **The risk awareness** item included the knowledge (yes/no) whether or <u>not lack of exercise behaviour</u> contributed to health problems of <u>heart disease and high blood pressure</u> (National Heart, Lung and Blood Institute, 2012; Steptoe & Wardle, 1992).

Measures

4. Beliefs in exercise health benefits

- rate the importance of taking regular exercise for health maintenance on 10-point scales, (Steptoe & Wardle, 1992).

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Measures

5. Behavioural factors

- Dietary behaviour

- *Tobacco use*

- *Past month binge drinking*": "How often do you have (for men) five or more and (for women) four or more drinks on one occasion?'

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Results

Country	Sample	Total sample		Men		Women		Statistic
		Physical activity		Physical activity		Physical activity		
		Mode-rate	High	Mode-rate	High	Mode-rate	High	P-value (male vs female)
	N	%	%	%	%	%	%	
Cambodia[1]	1,349	29.4	10.1	30.1	13.8	28.7	6.2	<0.001
Indonesia[1]	967	34.6	9.1	36.9	14.7	33.7	6.8	<0.001
Laos[1]	806	21.6	28.5	31.1	42.9	16.7	21.2	<0.001
Malaysia[2]	1,023	47.6	22.4	47.6	22.4	44.1	6.4	<0.001
Myanmar[1]	472	18.9	12.1	19.6	25.5	18.9	12.1	<0.001
Philippines[1]	780	38.6	19.7	33.0	35.5	40.5	14.3	<0.001
Singapore[3]	888	38.7	22.5	41.3	27.4	36.1	17.5	<0.001
Thailand[2]	1607	31.4	17.6	30.3	26.9	31.7	15.5	<0.001
Vietnam[1]	817	41.2	25.5	37.4	30.2	45.0	20.8	0.006
All	8,709	34.7	17.5	36.4	24.6	33.7	13.3	<0.001

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[1]Lower middle income, [2]Upper middle income, [3]High income country (World Bank, 2016)

Results

Variable	Moderate physical activity		High physical activity	
	COR (95% CI)	AOR (95% CI)	COR (95% CI)	AOR (95% CI)
Sociodemographics				
Gender **Women (62.3%)** **Men (37.7%)**	1 (Reference) 1.41 (1.27, 1.55)***	1 (Reference) 1.52 (1.33, 1.74)***	1 (Reference) 1.33 (1.15, 1.54)***	1 (Reference) 2.22 (1.87, 2.64)***
Age **18-20 (32.3%)** **20-21 (39.9%)** **22-30 (27.8%)**	1 (Reference) 0.98 (0.88, 1.10) 0.94 (0.83, 1.06)	1 (Reference) 1.03 (0.91, 1.16) 0.85 (0.73, 1.01)	1 (Reference) 0.96 (0.82, 1.12) 1.25 (1.06, 1.47)**	1 (Reference) 1.02 (0.84, 1.24) 1.20 (1.01, 1.38)*
Family wealth **Poor (63.0%)** **Wealthy (37.0%)**	1 (Reference) 0.84 (0.76, 0.93)***	1 (Reference) 0.79 (0.69, 0.90)***	1 (Reference) 0.87 (0.76, 0.99)*	1 (Reference) 0.82 (0.68, 0.98)*
Country income **Upper middle/high**	1 (Reference) 0.90 (0.82, 0.99)*	1 (Reference) 0.84 (0.75,	1 (Reference) 0.73 (0.64,	1 (Reference) 0.64 (0.55,

Results

Variable	Moderate physical activity		High physical activity	
	COR (95% CI)	AOR (95% CI)	COR (95% CI)	AOR (95% CI)
Health status and cognitive factors				
BMI **Normal weight (56.0%)** **Underweight (23.2%)** **Overweight (9.8%)** **Obese (11.0%)**	1 (Reference) 0.80 (0.71, 0.91)*** 1.01 (0.85, 1.19) 0.97 (0.83, 1.15)	1 (Reference) 0.83 (0.70, 0.98)* 1.05 (0.86, 1.29) 0.95 (0.77, 1.17)	1 (Reference) 0.70 (0.59, 0.83)*** 0.95 (0.75, 1.20) 1.09 (0.88, 1.35)	1 (Reference) 0.83 (0.69, 1.00) 0.97 (0.74, 1.28) 1.07 (0.82, 1.40)
Body weight perception **Normal weight (39.6%)** **Underweight (25.1%)** **Overweight (35.3%)**	1 (Reference) 0.92 (0.81, 1.04) 0.92 (0.83, 1.03)	1 (Reference) 1.00 (0.84, 1.19) 0.99 (0.85, 1.16)	1 (Reference) 0.89 (0.76, 1.05) 0.72 (0.62, 0.85)***	1 (Reference) 0.87 (0.70, 1.08) 0.76 (0.62, 0.93)**
Subjective health status (very good/excellent) (26.2%)	1.40 (1.26, 1.56)***	1.36 (1.19, 1.55)***	1.32 (1.15, 1.53)***	1.26 (1.08, 1.48)**
Risk awareness-exercise (scale) (M=0.78, range 0-2)	1.05 (0.98, 1.12)	1.06 (0.98, 1.15)	0.97 (0.89, 1.06)	0.95 (0.85, 1.05)
Exercise benefits (scale) (M=7.58, range 1-10)	1.09 (1.07, 1.11)***	1.11 (1.09, 1.14)***	1.11 (1.08, 1.14)***	1.11 (1.08, 1.05)***

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Results

Variable	Moderate physical activity		High physical activity	
	COR (95% CI)	AOR (95% CI)	COR (95% CI)	AOR (95% CI)
Behavioural factors				
Fruit (≥2 servings/day) (33.1%)	1.16 (1.03, 1.30)*	1.17 (1.02, 1.34)*	1.33 (1.15, 1.54)***	1.22 (1.03, 1.45)*
Vegetables (≥3 servings/day) (23.1%)	1.52 (1.33, 1.72)***	1.38 (1.19, 1.61)***	2.05 (1.76, 2.40)***	1.88 (1.55, 2.27)***
Avoid fat and cholesterol[1] (40.2%)	1.12 (1.01, 1.25)*	1.14 (1.01, 1.30)*	1.20 (1.04, 1.38)**	1.19 (1.01, 1.40)*
No current tobacco use (95.9%)	1.18 (0.92, 1.09)	1.20 (0.91, 1.57)	0.68 (0.51, 0.90)**	0.90 (0.66, 1.24)
Binge drinking (6.3%)	0.80 (0.65, 0.99)*	0.78 (0.62, 0.98)**	1.56 (1.24, 1.96)***	1.27 (0.98, 1.65)

Discussion

- The study found 52.2% health-enhancing PA, (e.g., 70.0% in Malaysia and 61.2% in Singapore)

- Similar to previous studies in Malaysia (74%) and Singapore (59%) (Seo et al., 2014), and in a study across 20 countries in the age group of 18-39 years (Bauman et al., 2009).

Discussion

- Significant country differences in moderate and high PA,

  (lower levels of PA in Myanmar and Indonesia

  and higher levels in Malaysia and Laos).

- Such differences may be attributed to different stages of physical activity transition in these countries (Ranasinghe et al., 2013), which will need to be explored in further research

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Discussion

In agreement with previous studies (Hallal et al., 2012),

❖ <u>male students</u> were more likely than female students to engage in health-enhancing PA.
❖ highlights the importance of targeting female university students in PA health promotion activities.

Discussion

Socioeconomic background of students,
- ❖ coming from a poor family background and
- ❖ living in a higher (upper middle or high) income country increased the odds for health-enhancing PA.

Consistent with Pengpid et al., 2015 showing

higher physical activity levels with economic development and improved access to sports facilities and health promotion information.

The association between poorer socioeconomic family background and health-enhancing PA may be explained by a lesser use of motorized transport.

Discussion

Dinger et al., (2014) found BMI was associated with health-enhancing PA,

This study underweight was inversely associated with moderate PA.

Ersoz et al, (2016) found that underweighted students were not motivated for exercise participation and had a higher dispositional flow than other BMI classifications

Discussion

- Overweight body perception was negatively associated with high PA.

- the perception of one's body weight is considered as more important than the actual body weight in determining PA levels (Seo et al., 2010).

- The non-association between PA levels and overweight and obesity in this study may be explained by the total PA remaining insufficient to prevent obesity (Bauman et al., 2009).

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Discussion

Furthermore,

❑ better <u>subjective health</u> status was, as in previous studies (Dinger et al, 2014), associated with health-enhancing PA.

❑ Galán et al. (2010) also found a dose-response relationship between PA and self-rated health

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Discussion

Regarding cognitive factors,

❏ no association between <u>risk awareness of lack of exercise</u> and health-enhancing PA. (also mixed results in a previous study, Steptoe & Wardle, 1992).

❏ <u>Health benefits beliefs</u> from regular exercise were strongly associated with health-enhancing PA (as confirmed in previous studies, El Ansari et al., 2014).

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Discussion

❑ Adequate dietary behaviours (fruit and vegetable consumption, avoidance of fat and cholesterol) were positively associated with health-enhancing PA (also earlier studies. Dinger et al., 2014; etc.),

❑ Increases in PA may impact other health behaviours, indicating that PA might be a mediator in maintaining other behaviour s (VanKim et al., 2010)

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Discussion

Substance use

- ❑ No current tobacco use was associated with moderate PA
- ❑ Binge drinking was marginally associated with high PA but negatively associated with moderate PA.
- ❑ Some studies (Seo et al., 2014; etc.) seem to suggest that university students who engage in high PA such as sports activities are more likely to participate in social gatherings supportive of binge drinking.

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Study 2

Vigorous physical activity, perceived stress, sleep and mental health among university students from 23 low- and middle- income countries

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Study 2 background

- Some evidence that objectively and/or subjectively measured vigorous physical activity (VPA) has beneficial effects on (perceived) stress (Gerber et al., 2014),

- self-rated health status (Tran et al., 2013), insufficient sleep (Tsunode et al., 2015), good sleep quality (Gerber et al., 2014), poor mental health (Vankim et al., 2013), depression (Schuch et al., 2017), and anxiety (Ströhle 2009).

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Study 2 Results

- Students who met vigorous physical activity (VPA) recommendations were less likely to report <u>perceived stress,</u> more likely to report <u>subjective good health and depression </u>than students without VPA.

- There was no association between VPA and sleep quality and quantity and anxiety symptoms.

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Study limitations

- Study populations were not representative of their countries

- Cross-sectional study→ longitudinal studies needed

- Physical activity was measured by self-report

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Conclusion

❑ A large sample of ASEAN university students had a moderately common prevalence of engaging in health-enhancing PA.

❑ Several influencing factors, such as socio-demographic, health status, cognitive and behavioural factors were identified that could inform strategies to promote health-enhancing PA.

Acknowledgement

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