

Development and validation of physical activity questionnaire for at-risk Thai people for type 2 diabetes mellitus

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Over-nutrition, sedentary lifestyles and leading causes to Type 2 diabetes mellitus (T2D) have been increasing over time in Thailand⁽¹⁾. Although age, gender, ethnicity and family history are non-modifiable risk factor of diabetes, other risk factors, such as overweight and obesity could be improved by increasing adequate physical activity⁽²⁾. The objective of this study is to develop and validate physical activity questionnaire (PAQ) for Thai at-risk people for T2D. The criterion validity of total physical activity was estimated from the International Physical Activity Questionnaire (IPAQ) using the ActiGraph accelerometer as an objective reference measure.

Development and validation of questionnaire, a total of 95 at-risk people for T2D were recruited (Figure 1). The PAQ was developed based on IPAQ. The developed PAQ was evaluated by three experts to ensure content validity. The at-risk people were interviewed by using the developed PAQ for the previous seven-day activities. Spearman’s correlation was used to compare accelerometer and the developed PAQ for concurrent validity. Interclass correlation was used to evaluate reliability of the developed PAQ separated by 3 days. Chi-square test was used for representing significant differences (p-value < 0.05) of the proportion of participants meeting current physical activity guidelines.

The experts ensured the content validity of the developed PAQ with total CVI’s score of 0.91. Table 1 presented the concurrent validity and reliability results of the developed PAQ. The total physical activity from the developed PAQ (MET-min week⁻¹), which included part-time occupation domain and excluded part-time occupation domain was significantly correlated with the total physical activity (counts week⁻¹) from ActiGraph accelerometer (r = 0.57 and 0.54, p < 0.01, respectively). The 3-days test-retest reliability of the total physical activity from the developed PAQ was 0.86 (p < 0.05) when including part-time occupation domain and was 0.85 (p < 0.05) when excluded part-time occupation domain.

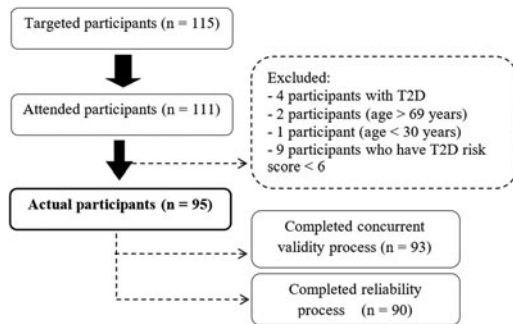


Fig. 1. The diagram of the study sampling framework.

Table 1. The validation and reliability separated between the developed PAQ included part-time occupation and excluded part-time occupation.

The developed PAQ (MET-min week ⁻¹)	Number of item	CSA validation	
		r value	R value
Included part-time occupation	11	0.57**	0.86*
Excluded part-time occupation	8	0.54**	0.85*

** , p-value < 0.01. * , p-value < 0.05.

r = Spearman Correlation Coefficient.

R = Interclass Correlation Coefficient.

PAQ = Physical activity questionnaire.

CSA = The Computer Science Applications, Inc., ActiGraph accelerometer.

The developed PAQ will be considered to be useful in the community as well as the means to ultimately promoting physical activity in the community.

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2. Sranachoenpong K, Hanning RM. (2012) Diabetes prevention education program for community health care workers in Thailand. *J Community Health* 37: 610–618.