

Physical Activity and Health Promoting Lifestyle among Bachelor of Nursing Students in Malaysia

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ABSTRACT

Promoting healthy lifestyle among nurses is important because they play a crucial role in health promotion. The aims of this study are to assess the physical activity level and health-promoting lifestyle among Bachelor of nursing students in Malaysia. This study involved 66 student nurses who are currently pursuing a Bachelor degree in the local government universities. The YAMAX Digi-Walker pedometer was used to measure physical activity level, while the Health-promoting Lifestyle Profile II questionnaire was used to measure the nursing student's health-promoting lifestyle. The HPLP II consists of six sub-scales which include health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. Results showed that majority of the Bachelor of nursing students were categorised as "somewhat active" and lower with the mean of $7487.88 \pm SD 1900.75$ step taken per day. Results of Health-Promoting Lifestyle Profile II showed that the Bachelor of nursing students are reported to have a positive health-promoting lifestyle with an overall mean score of $2.61 \pm SD 0.36$. The highest mean score was reported in the spiritual growth with a score of $3.07 \pm SD 0.40$, followed by interpersonal relations with a score of $2.93 \pm SD 0.40$, and stress management with mean a score of $2.67 \pm SD 0.41$. This study has discovered worrying signs of low physical activities level among the Bachelor of nursing students in two universities in Malaysia which may need immediate attention by the health care authorities. Immediate remedial is recommended to overcome the current status of physical activities level among the nursing students which may have an impact on the future health of the Malaysian general populations.

Key words: Physical activity, health promotion lifestyle, bachelor of nursing students, pedometer

INTRODUCTION

Nursing students often embark on university life with excitement and begin to experience greater freedom by taking responsibility for their own lives. It can be challenging for nursing students to balance between their studies and their new self-care responsibilities while forming peer relationships. Some students may eat a suboptimal diet such as regularly consume 'fast food' rather than healthier alternatives (McSharry and Timmins, 2017). Their physical activities may also decrease due to time constraints and/or lifestyle choices. A suboptimal diet and reduction in physical activity level combined with possible stress associated with this life transition can result in adverse health effects such as weight gain and mental health issues (Brinda *et al.*, 2017). Nurses need to take care of themselves first before taking care of others. This is important in promoting healthy lifestyles. Some studies showed that nursing students' lifestyles are inappropriate (Blake *et al.*, 2017; McSharry and Timmins, 2017; Rodriguez-Gazquez *et al.*, 2017). It has been described that during nursing degrees, some unhealthy lifestyles might worsen but also may start (Wills and Kelly, 2017). This panorama is far from promising to the new professionals who are joining the labour market (Blake *et al.*, 2017; Rodriguez-Gazquez *et al.*,

2017). In the future, nursing students will become professional nurses, therefore, their behaviours will allow them to have a positive impact on the health of the patients as well as their own health. They are in a key position to spread the message that intermittent moderate physical activity can lead to health benefit and increase awareness to patients to become physically active or to increase their activity level (Burns *et al.*, 2000). The evaluation of lifestyle among Bachelor of nursing students is important to ensure that nursing students have positive health promotion lifestyles. The physical activity habits established during their study period may help them to keep up with the habits and their future roles (McSharry and Timmins, 2017). In recent decades, the health care personnel has had to assume the role of more relevantly influencing the education of the general population regarding the prevention of risk factors and lifestyles change (Jarbøl *et al.*, 2017) which usually lies with nurses, who are seen nurses as role models by their patients. Therefore it is important for health care professionals to have good knowledge of healthy behaviours and also practise them (McColl-Kennedy *et al.*, 2017). Today's nursing students will become tomorrow's professionals who are caring, knowledgeable, and able to maintain behaviours that enable them to improve and protect

both the health of others and their own. Poorer health behaviours amongst student nurses not only have negative implications for them as individuals but also for the quality of care provision to the patients as well as the public image of the health service providers. Moreover, nurses' personal health behaviours may influence effective counselling of patients about lifestyle as nurses who are unhealthy themselves may be less willing to discuss lifestyle and health behaviours with patients and any such messages that they delivered may not appear credible to the patients. Therefore, this study aims to measure a physical activity and lifestyle among bachelor degree nursing students in two universities in the Malaysian urban area.

Materials And Methods

This descriptive study was conducted to assess the level of physical activity and lifestyle among bachelor degree nursing students at two universities in the Klang Valley, Malaysia. These two universities are located in the urban areas in Kuala Lumpur and Selangor.

Instrument

The Yamax Digiwalker was selected to measure physical activity in this study. This is most consistently accurate pedometer and is highly recommended for collecting research data especially measuring daily step (Bassett Jr *et al.*, 2000; Behrens and Dinger, 2003; Behren *et al.*, 2005). Results of steps count, calories burn and distance can be evaluated for weekday and weekend by one week (7days) memory setting. The Health-Promoting Lifestyle Profile (HPLP) II questionnaire was used to evaluate health-promoting behaviour among the nursing students and their lifestyle (Walker *et al.*, 1987). This HPLP II questionnaire consists of 52-items with six subscales, *Health Responsibility* (9-item), *Physical Activity* (8-item), *Nutrition* (9-item), *Spiritual Growth* (9-item), *Interpersonal Relationship* (9-item), and *Stress Management* (8-item). This HPLP II questionnaire use one (1) to four (4) matrix which is 1=Never, 2=Sometimes, 3= Frequently, and 4=Always

Data collection

During the briefing, the study session, Participant information sheet, consent form and HPLP II questionnaire were distributed to the participants before the lecture start. The nursing students have been directed to not put any identification information on their questionnaire. The nursing students stride lengths were measured to see kilometres covered and weight will be used to measure calories burn based on step count record in pedometer. Pedometers were distributed to the nursing students after all measurements were input to the pedometer and they have completed the questionnaires. Reminder form was attached together with the pedometer to ensure the nursing students will not forget to wear the pedometer, and this also will use during reporting pedometer results. The participant who record steps count below 2500 steps/day will have to wear pedometer once again to ensure the accuracy of the results. The nursing students were required to wear the pedometer for 7 days consecutively.

Data analysis

Descriptive data analysis was used to report the central tendency and dispersion involving mean, standard deviation, frequency and percentages for the pedometer. While the profile of HPLP II questionnaires, scores was analysed for the mean and standard deviation from overall HPLP II and the six subscales therein.

Results And Discussion

A total of 66 student nurses from both universities (University A, n=44; 66.7%, and University B, n=22; 33.3%) participated in this study. The average age of participants was between 19 to 40years-old with the mean value of $23.08 \pm SD5.39$; Body Mass Index (BMI) ($22.23 \pm SD4.14$) and mean Waist Hip Ratio (WHR) with a ratio of $0.77 \pm SD0.47$ (Table 1). Approximately 80% of the participants in this study have a normal BMI measurement. A study reported that participants with normal weight were 1.83 times more likely to be engaged in physical exercise compared with obese respondents (OR=1.83; 95.0% CI [1.15 – 4.47]) (Al-Tannir *et al.*, 2017).

Table 1: Profile among degree nursing students

	Minimum	Maximum	Mean	Std. Deviation
Age (year)	19.00	40.00	23.08	5.39
Weight (kg)	34.00	91.00	54.20	10.79
Height (cm)	141.00	167.00	156.07	5.22
Body Mass Index (kg/m ²)	15.31	33.77	22.23	4.14
Waist (cm)	56.00	94.00	72.73	9.19
Hip (cm)	71.00	117.00	94.52	9.18
Hip Waist Ratio (cm)	.64	.87	.77	.047

Based on stride length between 49cm to 82cm, mean total step for one week for University A and University B are $48946.57 \pm SD13297.01$ and $57254.50 \pm SD12043.77$ respectively (Table 2).

Results for weekday and weekend show the higher step counts were on weekdays and weekend with the mean of $7431.08 \pm SD2117.98$ and $7629.88 \pm SD2282.48$ respectively (Table 3). The highest step is on Monday for University B with a value of mean of 9590.68 ± 3878.60 followed by Sunday with a value of mean $8769.27 \pm SD3197.54$. The University A had documented highest step score on Sunday with the mean of $7869.20 \pm SD2928.72$ follow by Monday with mean score of $7862.11 \pm SD2594.42$. These two highest step counts are on weekday and weekend. The higher step counts during weekday and weekend can be caused by students' activities level on the weekdays were more hectic but during weekend majority of students may have leisure activities or they may travel to be with their families. Therefore, regardless of weekday or weekend the students' step counts were

comparable. This result contrasts with a study conducted in Malaysia that activity level was 16% higher during weekdays compare to weekends (Wilson, 2009). In both universities, the semester is still ongoing therefore the students were fully occupied for lectures and practical sessions in the nursing skill lab. Therefore, this may be the reason the step counts for the majority of the students can be categorised under low active because most of the time they were sitting during lectures or practising their skills in the skill lab instead of walking. A study conducted in Turkey discovered only 30% of 706 students in the Medical Faculty were physically active during their university education (Dayi et al., 2017). A study also reported most 164 (66.1%) of participants reported walking as the most common type of physical exercise (Al-Tannir et al., 2017).

Table 2: One-week physical activity among degree nursing students

Day	University A (n=44)	University B (n=22)	Total
	Step counts Mean±SD	Step counts Mean±SD	Mean±SD
Stride Length	65.16 ± 6.26	66.36 ± 5.74	65.56 ± 6.07
Day1_Monday	7862.11 ± 2594.42	9590.68 ± 3878.60	
Day2_Tuesday	7225.64 ± 2364.34	7254.55 ± 2846.80	
Day3_Wednesday	6381.91 ± 2401.41	7671.09 ± 3650.34	
Day4_Thursday	7120.18 ± 3356.24	8115.09 ± 3285.68	
Day5_Friday	6818.45 ± 3522.94	8018.14 ± 2348.23	
Day6_Saturday	6717.55 ± 2276.46	7836.50 ± 2635.85	
Day7_Sunday	7869.20 ± 2928.72	8769.27 ± 3197.54	
Total Step	48946.57 ± 13297.01	57254.50 ± 12043.77	7487.88 ± 1900.75

Table 3: Distribution of number of steps counts in weekday and weekend in each university students

University	Step counts			
	Weekday	Mean±SD	Weekend	Mean±SD
Uni A (n=44)				
Uni B (n=22)	4115.80-16298.40	7081.66 ± 303.37	3152.00-13972.00	7293.38 ± 344.09
	5009.80-13571.60	8129.91 ± 468.35	4235.50 ± 12030.50	8302.89 ± 464.50
Total Mean±SD	7431.08 ± 2117.98		7629.88 ± 2282.48	

The majority of the participants (95%; n=62) have less than 10,000.00 step counts. Approximately 40% of the nursing students were categorised under sedentary lifestyles and low active (Tudor-Locke and Bassett, 2004). Only four (n=4; 6%) of the participants have step counts 10,000.00 and more (Table 4). This finding is worrying because it indicates that most of the nursing students in both universities have low physical activities level which may have impact on their health in future. They need to increase their physical activity and thereby to motivate the community to stay active. A study reported that although the students were aware of the importance of proper diet and adequate levels

of physical activities in health, they did not implement theory into practice (Dayi et al., 2017). Thus, the authors were uncertain how these young health professionals will promote the positive effects and necessity of regular physical activity if they do not apply these activities to their own lifestyle (Dayi et al., 2017). A review of the literature has recommended a daily 10 000 step goal for maintaining a desirable level of physical activity for health (Choi et al., 2007). Maintaining physical activity level and the ability to walk independently is an important determinant of daily functioning and quality of life (Dijkstra et al., 2008). A survey conducted to estimate the prevalence of physical

exercise among nurses discovered that 248(60.2%) of participants reported that they are currently engaged in physical exercises (Al-Tannir et al., 2017).

Table 4: Physical activity category based on step counts for each University suggested by Tudor-Locke and Bassett (2004)

Step Counts/day	Category	University A		University B		Total	
		n	%	n	%	n	%
<5000	Sedentary Lifestyle	2	3.0	0	0	2	3.0
5000-7499	Low Active	25	37.9	9	13.6	34	51.5
7500-9999	Somewhat Active	15	22.7	11	16.7	26	39.4
10000-12499	Active	1	1.5	2	3.0	3	4.5
>12500	Highly Active	1	1.5	0	0	1	1.5
Total		44	66.7	22	33.3	66	100

Overall Health-Promoting Lifestyle Profile II (HPLP II) score shows the mean of $2.61 \pm SD0.36$ and from six subscales, the higher mean score is spiritual growth with the mean value of $3.07 \pm SD0.40$, followed by interpersonal relations with mean of $2.93 \pm SD=0.40$; stress management with a mean of $2.67 \pm SD=0.41$. Nutrition show value of mean $2.51 \pm SD0.37$ higher than health responsibility with the value of mean $2.18 \pm SD0.46$ and the lowest mean score came from physical activity with the value of mean $2.18 \pm SD0.46$ (Table 5).Lifestyles are a product of people's motivations to protect or improve their own health and to avoid illnesses (Pender, Murdaugh, & Parsons, 2006). Therefore, it is really relevant to evaluate if nursing students' lifestyles are healthy enough at the beginning of their university education, so that nursing schools may design timely interventions that are capable of improving the health behaviours of the future professionals.(Rodriguez-Gazquez et al., 2017).In promoting lifestyle profile, degree nursing students show a positive result and higher on spiritual growth subscale with the value of mean $3.07 \pm SD=0.40$, these results are consistent with research by Haddad et al. (2004) that the Canadian and Jordanian

nursing students get the higher score in spiritual growth. This is probably due to spiritual aspects that include faith in God, belief in religion, the strength of soul, appreciation of the values and norms of society and good manners noble character which is needed in their duties as future nurses. According to Al-Tannir et al., (2017) 180(72.6%) of participants in their study relied on their own motivation to perform physical exercise while 64.6% reported the lack of availability of physical exercise facilities. A study reported that non-smoker respondents were significantly more engaged in physical exercise compared with smokers (odds ratio [OR]=1.61; 95.0% CI [1.43 – 2.85]) (Al-Tannir et al., 2017). This result may contradict with this study because culturally cigarette smoking was not encouraged among Malaysian. Although the majority of these students may not be a smoker, however, their activity level still can be categorised as low active. These can be a warning signs for the health care providers regarding the low physical activities level among students that may have an impact on the health of the Malaysian population in the future.

Table 5: Score for Health-Promoting Lifestyle Profile II

Health-Promoting Lifestyle	University A		University B		Total	
	Mean	SD	Mean	SD	Mean	SD
Health responsibility	2.27	.47	1.98	.39	2.18	.46
Physical activity	2.32	.61	2.06	.32	2.23	.54
Nutrition	2.57	.40	2.42	.31	2.51	.37
Spiritual growth	3.18	.35	2.86	.41	3.07	.40
Interpersonal relations	2.99	.37	2.81	.44	2.93	.40
Stress management	2.70	.41	2.61	.41	2.67	.41
Health Promoting Lifestyle	2.68	.33	2.46	.30	2.61	.36

Conclusion

In conclusion, this study has found alarming signs of low physical activities level among the nursing students in two universities in the urban area in Malaysia. Although this study results cannot be generalised to other nursing student’s population in

Malaysia but this may be the indication of the current status of physical activities level among the nursing students which need immediate attention by the health care authorities. According to Lingfors et al. (2003) participants who improved dietary intake and increased physical activity improved their biological

risk markers correspondingly such as body mass index, waist to hip ratio, and serum cholesterol concentration. The nursing students need to realise the benefits of physical activity for weight control as well as disease prevention. Thus, they will appreciate the importance of having an adequate level of physical activity so that they will be able to promote health to the community because the students themselves have been exposed to the advantages and benefits of physical activity to reduce the risk of getting any diseases. According to Jakicic and Otto (2005) an individual need to participate in an inadequate level of physical activity in order to realise the benefits of physical activity for weight control and health. Every nurse needs a positive health promotion behaviours and lifestyles in order to convince the community about the importance of health. The orientation of health promotion began to shift from focusing on the modification of individual risk factors or risk behaviours' to addressing the 'context and meaning' of health actions and the determinants that keep people healthy (Kickbusch, 2003).

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References

- Al-Tannir, M.A., S.Y. Kobrosly, N.K. Elbakri and A.K. Abu-Shaheen, 2017. Prevalence and predictors of physical exercise among nurses. *Saudi Medical Journal*, 38(2): 209-212.
- Bassett Jr, D.R., A.L. Cureton and B.E. Ainsworth, 2000. Measurement of daily walking distance-questionnaire versus pedometer. *Medicine and science in sports and exercise*, 32(5): 1018-1023.
- Behren, T.K., S.B. Hawkins and M.K. Dinger, 2005. Relationship between objectively measured steps and time spent in physical activity among free-living college students. *Measurement in Physical Education and Exercise Science*, 9(2): 67-77.
- Behrens, T.K. and M.K. Dinger, 2003. A preliminary investigation of college students' physical activity patterns. *American Journal of Health Studies*, 18(2/3): 169.
- Blake, H., N. Stanulewicz and K. Griffiths, 2017. Healthy lifestyle behaviors and health promotion attitudes in preregistered nurses: A questionnaire study. *Journal of Nursing Education*, 56(2): 94-103.
- Brinda, S., S. Abeetha, M. Ganesh, K. Ramya and K. Punitha, 2017. Prevalence of stress and anxiety among nursing students and its association with bmi. *Global Journal For Research Analysis*, 5(11): 112-113.
- Burns, K.J., D.N. Camaione and C.T. Chatterton, 2000. Prescription of physical activity by adult nurse practitioners: A national survey. *Nursing outlook*, 48(1): 28-33.
- Choi, B.C., A.W. Pak and J.C. Choi, 2007. Daily step goal of 10,000 steps: A literature review. *Clinical & Investigative Medicine*, 30(3): 146-151.
- Dayi, A., A. Acikgoz, G. Guvendi, L. Bayrak, B. Ersoy, C. Gur and O. Ozmen, 2017. Determination of factors affecting physical activity status of university students on a health sciences campus. *Medical Science Monitor*, 23: 325-334.
- Dijkstra, B., W. Zijlstra, E. Scherder and Y. Kamsma, 2008. Detection of walking periods and number of steps in older adults and patients with parkinson's disease: Accuracy of a pedometer and an accelerometry-based method. *Age Ageing*, 37(4): 436-441.
- Haddad, L., D. Kane, D. Rajacich, S. Cameron and R. Al-Ma'aitah, 2004. A comparison of health practices of canadian and jordanian nursing students. *Public Health Nursing*, 21(1): 85-90.
- Jakicic, J.M. and A.D. Otto, 2005. Physical activity considerations for the treatment and prevention of obesity. *The American journal of clinical nutrition*, 82(1): 226S-229S.
- Jarbøl, D.E., P.V. Larsen, D. Gyrd-Hansen, J. Søndergaard, C. Brandt, A. Leppin, B.L. Barfoed and J.B. Nielsen, 2017. Determinants of preferences for lifestyle changes versus medication and beliefs in ability to maintain lifestyle changes. A population-based survey. *Preventive Medicine Reports*, 6: 66-73.
- Kabiri, F., & Mooghali, A. R. (n.d.). Business Model Implementation and Entrepreneurial Orientation Enhancing in Hospitals in Shiraz City. 250| *International Journal of Pharmaceutical Research*, 10. <https://doi.org/10.31838/ijpr/2018.10.03.081>
- Kickbusch, I., 2003. The contribution of the world health organization to a new public health and health promotion. *Am. J. Public Health*, 93(3): 383-388.
- Lingfors, H., K. Lindström, L.-g. Persson, C. Bengtsson and L. Lissner, 2003. Lifestyle changes after a health dialogue results from the live for life health promotion programme. *Scand. J. Prim. Health Care*, 21(4): 248-252.
- McColl-Kennedy, J.R., S.J. Hogan, L. Witell and H. Snyder, 2017. Cocreative customer practices: Effects of health care customer value cocreation practices on well-being. *Journal of Business Research*, 70: 55-66.
- McSharry, P. and F. Timmins, 2017. Promoting healthy lifestyle behaviours and well-being among nursing students. *Nursing Standard*, 31(24): 51-63.
- Rodriguez-Gazquez, M., S. Chaparro-Hernandez and J.R. González-López, 2017. Are first-year nursing students' lifestyles coherent with their future career? *International Journal of Nursing Practice*.
- Tudor-Locke, C. and D.R. Bassett, 2004. How many steps/day are enough? *Sports Med.*, 34(1): 1-8.
- Walker, S.N., K.R. Sechrist and N.J. Pender, 1987. The health-promoting lifestyle profile: Development and psychometric characteristics. *Nursing research*, 36(2): 76-81.

22. Wills, J. and M. Kelly, 2017. What works to encourage student nurses to adopt healthier lifestyles? Findings from an intervention study. *Nurse Education Today*, 48: 180-184.
23. Wilson, N.C., 2009. Pedometer-assessed physical activity of urban malaysian youth. *ISN Bulletin*, 2: 9-18.