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The Relationship between a Health-Promoting Lifestyle and Sickness Absence in a Healthcare Company

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Abstract

Introduction The health and wellbeing of healthcare workers is important. This study aims to determine if associations exist between the health promoting behaviour and sickness absence of people employed in a Middle-Eastern healthcare company over a 12 month period.

Method A cross-sectional survey was sent to all employees (n=233); it measured sickness absence in spells and days and, 'health promoting behaviour' by use of the Health Promoting Lifestyle Profile II (HPLP II) which measured six subscales: Spiritual Growth, Interpersonal Relations, Nutrition, Physical Activity, Health Responsibility and Stress Management.

Results The odds of high spells of sickness absence were 5 times greater in people with poor rather than good health promoting scores, after a post-hoc analysis (OR 5.3, p=0.0039, CI 1.7 to 16.6). Men had better physical activity scores than women (p<0.05). Job role was associated with sickness absence (p=0.003 for spells, 0.005 for days), with administrative staff having higher rates of sickness absence than clinical staff.

Conclusion The results suggest that no specific health promoting behaviour was associated with sickness absence in this setting. However, the overall effect shows that higher HPLP II scores are correlated with lower sickness absence. Sickness absence may also be associated with job role.

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Introduction

Health promotion in work through the design of effective workplace interventions relies on understanding human behaviour. Behaviours around health, safety and wellbeing impact productivity in the workplace. This settings-based approach to health promotion is recommended by the World Health Organization following the launch of the Ottawa Charter in 1986 (1). The concept of behaviour has been used by Walker et al. in the development of the Health Promoting Lifestyle Profile (2).

Settings approach to health promotion

There is general consensus that lifestyle factors, such as smoking, obesity, physical activity and alcohol consumption, are associated with sickness absence although these aetiological associations have not been elucidated (3). The most compelling evidence for a relationship between lifestyle and sickness absence comes from one multi-cohort study (4) which considered the health behaviours in four large, international settings and their impact on sickness absence. Overall results showed that different lifestyle factors were linked to sickness absence due to different illness categories. However, it also highlighted that attempts to change lifestyle through workplace health promotion (WHP) interventions have not always proven

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cost-effective. A well-designed whole-system approach to WHP interventions has been shown to have the most benefit, empowering individuals to improve their personal and job wellbeing while decreasing costs related to sickness absence for the employer (5). Further advantages of a whole system approach comes from research on UK healthcare workers, a workforce with high prevalence of stress and burnout (6).

Measuring behaviour

For sustainable change, health promoting behaviour is a better measure of intervention success than lifestyle factors, described in the literature as health-risk behaviours. Researchers consider lifestyle factors, such as obesity and smoking, to be a lifestyle 'behaviour', but this differs from 'health promoting behaviours' which relate to physical, psychological and social aspects of personal wellbeing (7).

Research Questions

Sickness absence is often used as an indicator of the health of employees and has both direct and indirect costs for organizations (8, 9). Our study seeks to answer the research question: 'Do health-promoting lifestyles have an impact on sickness absence among employees of a healthcare organisation in the Middle East?', and explores the relationships between:

1) health-promoting lifestyle and sickness absence over a 12 month period,
2) demographics of the study group and health-promoting lifestyle and
3) demographics of the study group and sickness absence over this period.

Method

This cross-sectional, observational study, took place in Qatar. The total population sampling was used to ensure both employee privacy and confidentiality were maintained within this medium sized healthcare company employing 233 people. As an outsourcing company, doctors, registered nurses and allied health professionals were assigned to different hospitals and clinics with varying work demands while administrative staff were based in one office setting. The company was only 2 years old, and allowed paid sick leave of 14 days after a 6-month probation period. Staff lived in company accommodation, usually without members of their families.

Instruments

The 'health promoting lifestyle' of employees was assessed using a validated tool used first in 1996, and in many different populations worldwide. This tool is called the 'Health Promoting Lifestyle Profile II' (10). It is a 52-question survey, asking participants to answer short questions by circling one of four options 'never, sometimes, often and routinely' based on their current lifestyle behaviour. Behaviour is measured around six domains: Spiritual Growth, Nutrition, Physical Activity, Interpersonal Relations, Stress Management and Health Responsibility. A second questionnaire asked participants about their biodata and sickness absence in the year preceding the date of questionnaire completion. Sickness absence was measured both in number of spells and number of days in the last 12 months.

These two questionnaires formed part of a package which also included an introductory letter and participant information sheet explaining the purpose of the study, the rights of the participants and the anonymity that is assured when agreeing to participate.

Data Collection

The data was collected in April and May 2019. Packages were delivered via the in-house postal service to the company's staff accommodations and to the main office. Anonymous questionnaires were completed privately and returned via the same route, providing anonymity and implied consent by the employee. After two weeks, a second package containing the same documents was sent to all employees with an instruction not to resubmit if completed already.

Statistical Methods

SPSS statistical software 26 version (2019) IBM package was utilized to store and analyse raw data on a secure server. Incomplete questionnaires and invalid responses were excluded from the data set.

The HPLP II questionnaire data could be viewed in two ways: 1. it can be interpreted continually as a scale variable; or 2. as used in other papers, as a dichotomous categorical variable with a mean score of 2.5 as the cut off value to delineate poor and good health-promoting lifestyle scores (11, 12). The first approach is the typical way of analysing the responses; however, the second way is a plausible interpretation of the results as the original HPLP questionnaire was designed to allow lower scores for negative behaviours and higher scores for positive behaviours.

For normally distributed continuous data, Spearman's rank correlation coefficient, one-way ANOVA test and independent t-tests were used. For the normally distributed, dichotomous approach, Mann-Whitney U test, cross tabulations and chi-squared tests were used to determine associations. Where the dataset observed were not normally distributed the Kruskal-Wallis test was used.

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High spells of sickness absence in this study was defined as 3 or more spells; high days of sickness absence was defined as 5 or more sick days; and long-term sickness absence refers to more than 7 consecutive days of sickness absence. Spells of 3 or more are generally considered high and serve as a trigger point for Human Resources (HR) intervention (13). According to a HR expert, founder and Dean of Academy to Innovate HR, Netherlands, a "healthy" number of sick days for any company is 3-4 days per year; we used this reference to benchmark high days of sickness absence (14).

Ethical Considerations

Permission and approvals for this study were obtained from the healthcare company and the University of Manchester's Ethics Committee. The method used ensured full confidentiality and consent by participants.

Results

From a population size of 233 employees, a 52% response rate was achieved (n=122). The participant demographic showed a strong predominance in age (26–35 years = 82.0%), gender (female = 76.2%), nationality (Filipino = 90.2%), job role (registered nurses = 70.2%) and religion (Christian = 93.4%) (Table 1).

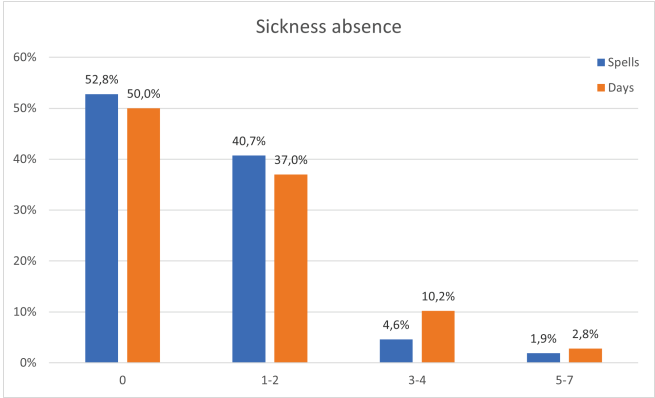
Table 1. Demographic Frequencies

Demographics		Frequency	Valid %
Age Group	18 - 25	2	1.6
	26 - 35	100	82.0
	36 - 45	14	11.5
	46 - 55	6	4.9
	56 - 65	0	0.0
Gender	Male	29	23.8
	Female	93	76.2
Job Role	Administrative	24	19.8
	Nurse	85	70.2
	Doctor	0	0.0
	Allied Health Professional	12	9.9
	Missing	1	
Nationality	Filipino	110	90.2
	Indian	4	3.3
	Sri Lankan	3	2.5
	Not Stated	5	4.1
Religion	Christianity	114	93.4
	Islam	6	4.9
	Hindu	2	1.6

After excluding 14 responses due to invalid reporting of sickness absence, (spells of sickness absence exceeding days of sickness absence), 108 responses were used in the final analysis. There were no duplicated responses in the data set.

The majority of the study population reported no spells of sickness absence (52.8%) with no sick days taken (50.0%). Sickness absence was found to be a rare outcome with most of the population reporting two or fewer spells of sickness absence (93.5%), and two or fewer days of sickness absence (87%) over the previous 12-month period. There were also no long-term periods of sickness absence reported (Figure 1).

Figure 1. Proportion of the total number of spells and days of sickness absence.



For the HPLP II scores, cases of incomplete responses were not included in the analysis for either the total score or for each of the six subscales. The total number of cases used in the total HPLP II mean scores analysis was 103. On average, participants engaged in health-promoting behaviour at least 'sometimes' on the HPLP II profile which showed a normal distribution of the average of the total scores (mean 2.73 ± 0.39, minimum score = 1.87 and maximum score = 3.73) (Appendix 1).

Our population had high mean scores for Spiritual Growth (3.19 ± 0.504) and Interpersonal Relations (3.00 ± 0.467) (Table 2); the lowest mean score in this population was for Physical Activity (2.36 ± 0.558).

Exploring the research objectives

(i) Is there an association between a health-promoting lifestyle and sickness absence?

When considering HPLP II as a continuous scale or as a dichotomous variable, against both sickness absence measures, both Spearman's co-efficient and Mann-Whitney U tests produced results that were not statistically significant. However, the negative values of Spearman's rho (-0.041, p=0.681; -0.064, p=0.519) for mean total HPLP II scores and the number of spells of sickness absence/ days of sickness absence respectively, suggests a negative correlation may exist between HPLP II scores and sickness absence for this population.

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Table 2. HPLP II scores in order of rank of subscale scores.

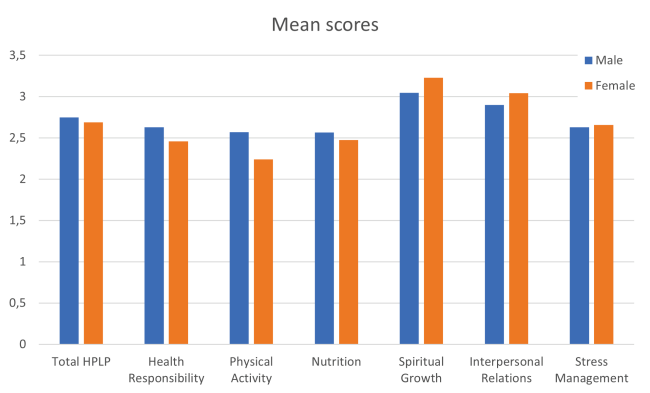
Rank	HPLP II category	n	Mean of mean Score	Minimum	Maximum
1	Spiritual Growth	108	3.19 ± 0.504	2.00	4.00
2	Interpersonal Relations	107	3.00 ± 0.467	2.00	3.89
3	Stress Management	107	2.67 ± 0.495	1.75	3.75
4	Nutrition	107	2.54 ± 0.421	1.67	3.67
5	Health Responsibility	105	2.53 ± 0.468	1.44	3.78
6	Physical Activity	107	2.36 ± 0.558	1.25	3.75
	Overall Total	103	2.73 ± 0.39	1.87	3.73

(ii) Are there any associations between the specific demographics of the study group and health-promoting lifestyle?

Using a one - way ANOVA test, age group, job role, and religion were analysed against the mean HPLP II scores, but no statistically significant differences in the means were found between groups (due to the small size of the groups a full post hoc analysis was not possible.)

To analyse the association between gender and health-promoting lifestyle as a continuous variable an independent t-test was performed. A comparison of the mean values of the mean scores from the HPLP-II questionnaire by gender was obtained (Figure 2).

Figure 2. Comparison of mean values of mean HPLP-II scores by gender.



A significant association was found between gender and mean Physical Activity scores as seen by both the independent t-test ($p<0.005$) with equal variances assumed, and the chi-squared test for gender and poor/good mean Physical Activity scores (chi-square = 4.872, $p=0.027$).

When considering the statistically significant association between gender and Physical Activity, to understand this relationship further, the data shows that more men (51.7%), compared to women (29.3%), were found to have good Physical Activity scores. However, no statistical significance was found for the means of the total HPLP-II and all other 5 subscales when gender is considered. Similar results were obtained when chi-squared tests were performed to determine if any such associations existed between these same 5 subscales and poor/good health-promoting lifestyle scores.

(iii) Are there any associations between the specific demographics of the study group and sickness absence?

Using the Kruskal-Wallis test, statistically significant results were obtained when comparing the mean ranks of the different groups in the demographic, job role: 11.875 ($p=0.003$) and 10.629 ($p=0.005$) for spells of sickness absence and days of sickness absence, respectively. When a post hoc Mann-Whitney U test was conducted for spells of sickness absence, there were statistically significant differences between all three occupational groups when analysed in pairs: administrative role and registered nurses ($p=0.024$); nurse and allied health professionals ($p=0.020$); administrative role and allied health professionals ($p=0.001$). 83.3% of allied health professionals, 50% of the registered nurses and 20.8% of administrative staff reported no spells of sickness absence over the previous 12 month period.

For days of sickness absence, the Kruskal-Wallis test showed statistically significant differences between administrative staff and registered nurses ($p=0.017$), and between administrative staff and allied health professionals ($p=0.004$). There was no statistical significance between registered nurses and allied health professionals when looking at days of sickness absence ($p=0.051$).

Regarding age group and religion, no significant statistical differences were found between the mean ranks of each respective group when looking at spells of sickness absence and days of sickness absence.

Using the Mann-Whitney U test to compare the means of the sickness absence data with gender, no statistical signi-

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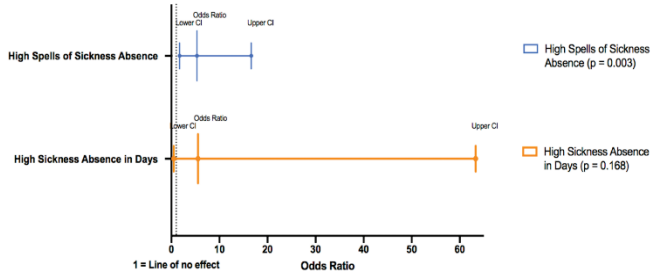
ficance was found (spells: p=0.674; days: p=0.462).

Post hoc analysis of the first research question

As high sickness absence was a rare outcome, with most of the population (93.5%) having 2 spells of reported sickness absence or less, a retrospective sub-analysis was undertaken, comparing the odds ratio (OR) of high sickness absence to poor/good health promoting lifestyle categories. Employees with low total HPLP II scores (<2.5) were found significantly to be 5.3 times more likely to have higher sickness absence of more than two spells per year (OR 5.3182; CI 95% 1.71 to 16.57; p=0.0039). Similarly, employees with low total HPLP II scores (<2.5) were likely to have more days of sickness absence per year (>5 days) but this was not statistically significant (OR 5.53; CI 95% 0.4840 to 63.2650; p=0.1688).

These OR calculations suggest that, despite the many limitations of this study, there is a possible association between health promoting lifestyle scores and sickness absence (Figure 3).

Figure 3. Comparison of odds ratio for high sickness absence with 95% confidence interval.



Discussion

Important Findings

Based on the retrospective post hoc analysis done because of the unusually low sickness absence in this population, employees with poor HPLP II scores were approximately five times more likely to be absent from work on sick leave. Despite no statistically significant association between health promoting behaviour and sickness absence in the original dataset, in this population a negative relationship was still likely. Also, Physical Activity was associated with gender, with men being more physically active than women. Statistically significant associations were also found between job role categories and sickness absence in this healthcare setting. Clinical staff (doctors, registered nurses and allied health professionals) taking less sick leave than administrative staff.

Strengths

Key strengths of this study are the good response rate (52%) (18) and similarity of results found whether the HPLP II scores were viewed as a continuous scale or as a dichotomous variable of poor/good, which is consistent with the literature. The correlating statistical analysis validated the findings in this study population, and the results in terms of job role and sickness absence, and Physical Activity and gender are also consistent with data from other extensive surveys (15-17).

Limitations, Bias and Confounding Factors

Limitations included the skewed population demographics of the typical respondent, being a female, Filipino, Catholic, registered nurse. This population corresponds to a very particular demographic group and may not be considered applicable to other study groups. Nevertheless, the significant finding of job role associated with sickness absence has been shown previously in the UK National Health Service (18). The significant association between gender and Physical Activity found in this study has also been seen in previous studies (15-17, 19) with males being more likely to exercise than females (16); reasons cited include the societal or cultural responsibilities of women. In this particular expatriate population however, the female population was less likely to be living with families since the norm in this setting was to live in 'single' company accommodations. The social responsibilities therefore are possibly equivalent to the expatriate male but women still engaged in less physical activity than men (16).

The low rate of sickness absence may be attributed to possible recall bias, or to a possible confounding factor found, namely 'length of service', which was not considered initially. This healthcare company was slightly more than two years old thus, staff had been employed for a short duration. Previous research suggests a possible relationship between sickness absence and length of service, where within the first year of work, the majority (90.7%) of employed men in an industrial setting had two or less spells of sickness absence (20). However, there is limited research around duration of employment and sick leave in a healthcare setting. As suggested by Pocock et al, in both settings, the non-availability of paid sick leave in the first 6 months of employment could be a confounding factor in our study. When considering days of sickness absence, our population had unusually low numbers when compared with other populations in the same time period (21). This finding may also be due to a response bias with 48% of the study population not responding.

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Settings-based Health Promotion

Asia and the Middle East face specific challenges pertaining to WHP, from industrialisation and globalisation, to migrant worker health. With this in mind, Shanghai and Singapore were able to conduct successful WHP programs by taking an integrative approach to holistic health promotion with improvements in health measures and sickness absence (22). These successful examples highlight the need for whole system workplace interventions that go beyond the typical first and second generation health promotion strategies to the now fourth generation approach - holistic, enabling cyclic, data driven assessments tailored to the needs of communities (22). Communities in these examples included workplaces in various industries, with the integration of occupational health and safety in the strategy, as it was found to be less cost effective when viewed as separate programs (22).

While considering the special demographics and social circumstances of the workforce in this region, research in other parts of the world also support the importance of the settings-based approach to health promotion. This type of strategy has an influence on issues around inequality and inclusion and "place-shaping" with systems-based responses to complex problems (1) around creating healthy populations. However, our paper demonstrates 'health promoting lifestyle behaviour' transcending external social demographics (such as ethnicity and religion) in the workplace, and highlights commonalities in important occupational demographics (e.g., length of service, job role and gender) as being significant influencers. Therefore, investigating such behaviours further can be very useful in the development of workplace interventions for better health and wellness.

Finally, certain learning and future research considerations follow from this study:

1) Sickness absence was a rare outcome but within the limitations of a post hoc analysis, people with poor HPLP-II scores were five times more likely to have a high number of spells of sickness absence. Therefore, could 'workplace induction programmes', be used to address health, safety and wellness behaviour from the start of employment to improve future spending? An early health and wellness intervention could potentially reduce future sickness absence when done in a period with low sickness reporting.
2) What is the effect of a longer service record on HPLP-II scores and its impact on sickness absence?
3) The results of a modified dichotomous version of the HPLP-II scoring system yielded the same results as the original scoring system. Could this version be a reliable and more accessible tool when evaluating 'lifestyle behaviour' within organizations to improve health and wellness through WHP interventions?

More research is needed on 'lifestyle behaviour' and its effect on absenteeism as part of developing whole-system approaches to WHP in international settings. The workplace continues to be in a strategic position to influence population health and wellness using holistic strategies for a better chance of success.

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Contributors:

Conception and design of the study: FA, DS. Acquisition of data: FA. Analysis and interpretation data: FA, MS. Drafting the article: FA, DS, MS. Revisions and final approval of the article: FA, DS, MS.
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Ethics approval: University of Manchester, UK.
Availability of data and materials: University of Manchester, UK, server – SPSS.

References

(1) Dooris M. Holistic and sustainable health improvement: the contribution of the settings-based approach to health promotion. Perspect Public Health. 2009; 129:29-36. doi:10.1177/ 1757913908098881.
(2) Walker SN, Sechrist KR, Pender NJ. The Health-Promoting Lifestyle Profile: development and psychometric characteristics. Nurs Res. 1987; 36:76-81.
(3) Burdorf A, Robroek S. Does lifestyle matter for sickness absence? Lancet Public Health. 2018; 3:e513-e4. doi:10.1016/S2468-2667(18) 30211-1.
(4) Virtanen M, Ervasti J, Head J, et al. Lifestyle factors and risk of sickness absence from work: a multicohort study. Lancet Public Health. 2018; 3:e545-e54. doi:10.1016/S2468-2667(18)30201-9.
(5) Chu C, Breucker G, Harris N, et al. Health-promoting workplaces—international settings development, Health Promotion International 2000; 15:155–67. doi:10.1093/heapro/15.2.155.
(6) Boorman S. NHS Health and Well-being Review – Interim Report: Department of Health, UK; 2009. Available at: https://webarchive.nationalarchives.gov.uk/20130124052413/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_108910.pdf.
(7) Lippke S, Nigg CR, Maddock JE. Health-promoting and health-risk behaviors: theory-driven analyses of multiple health behavior change in three international samples. Int J Behav Med. 2012; 19:1-13. doi:10.1007/s12529-010-9135-4.
(8) Ferrie JE, Kivimäki M, Head J, Shipley MJ, Vahtera J, Marmot MG. A comparison of self-reported sickness absence with absences recorded in employers' registers: evidence from the Whitehall II study. Occup Environ Med. 2005; 62:74-9. doi:10.1136/oem.2004.013896.
(9) Kivimäki M, Head J, Ferrie JE, Shipley MJ, Vahtera J, Marmot MG. Sickness absence as a global measure of health: evidence from mortality in the Whitehall II prospective cohort study. BMJ. 2003; 327:64. doi:10.1136/bmj.327.7411.364.
(10) Walker SN, Sechrist KR, Pender NJ. Health Promotion Model - Instruments to Measure Health Promoting Lifestyle: Health-Promoting Lifestyle Profile [HPLP II] (Adult Version). 1995.

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(11) Wei CN, Harada K, Ueda K, Fukumoto K, Minamoto K, Ueda A. Assessment of health-promoting lifestyle profile in Japanese university students. Environ Health Prev Med. 2012; 17:222-7. doi:10.1007/s12199-011-0244-8.
(12) Al-Kandari F, Vidal VL, Thomas D. Health-promoting lifestyle and body mass index among College of Nursing students in Kuwait: a correlational study. Nurs Health Sci. 2008; 10:43-50. doi:10.1111/j.1442-2018.2007.00370.x.
(13) Whitaker SC. The management of sickness absence. Occup Environ Med. 2001; 58:420-4. doi:10.1136/oem.58.6.420.
(14) Vulpen Ev. Academy to Innovate HR [Internet]: @AnalyticsinHR. 2020. Available at: https://www.aihr.com/blog/absenteeism-rate/.
(15) Lee RL, Loke AJ. Health-promoting behaviors and psychosocial well-being of university students in Hong Kong. Public Health Nurs. 2005; 22:209-20. doi:10.1111/j.0737-1209.2005.220304.x.
(16) Can G, Ozdilli K, Erol O, et al. Comparison of the health-promoting lifestyles of nursing and non-nursing students in Istanbul, Turkey. Nurs Health Sci. 2008; 10:273-80. doi:10.1111/j.1442-2018.2008.00405.x.
(17) Al-Kandari F, Vidal VL. Correlation of the health-promoting lifestyle, enrollment level, and academic performance of College of Nursing students in Kuwait. Nurs Health Sci. 2007; 9:112-9. doi:10.1111/j.1442-2018.2007.00311.x.
(18) NHS Sickness Absence Rates January 2019 to March 2019 and Annual Summary 2010-11 to 2018-19 - NHS Digital: @NHSDigital; 2019. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/nhs-sickness-absence-rates/january-2019-to-march-2019-and-annual-summary-2010-11-to-2018-19.
(19) Lee RL, Loke AJ. Health-promoting behaviors and psychosocial well-being of university students in Hong Kong. Public Health Nurs. 2005; 22:209-20. doi:10.1111/j.0737-1209.2005.220304.x.
(20) Pocock SJ. Relationship between sickness absence and length of service. Br J Ind Med. 1973; 30:64-70. doi:10.1136/oem.30.1.64.
(21) Sickness absence falls to the lowest rate on record - Office for National Statistics: Labour Force Survey person datasets, ONS; 2019 (updated 30 July 2018). Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/sicknessabsencefallstothelowestratein24years/2018-07-30.
(22) Pham CT, Lee CB, Nguyen TLH, Lin JD, Ali S, Chu C. Integrative settings approach to workplace health promotion to address contemporary challenges for worker health in the Asia-Pacific. Glob Health Promot. 2020; 27:82-90. doi:10.1177/1757975918816691.

Appendix 1. Histogram of Distribution of Mean Total HPLP II Scores.