

DIET, OTHER HEALTH-RELATED BEHAVIOURS, AND THE WELL-BEING OF NURSES

Andrew P. Smith*

Centre for Occupational and Health Psychology, School of Psychology, Cardiff University, 63 Park Place, Cardiff CF10 3AS, UK.

*Corresponding Author: Dr. Andrew P. Smith

Centre for Occupational and Health Psychology, School of Psychology, Cardiff University, 63 Park Place, Cardiff CF10 3AS, UK.

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ABSTRACT

Background: Our previous research has examined the associations of health-related behaviours (HRBs) with well-being outcomes in samples of students. In these studies, well-being was measured with the well-being process questionnaire (WPQ), and this was continued in a survey of nurses. Diet, smoking, alcohol consumption, exercise, and sleep were also measured. **Methods:** An online survey of 170 nurses was carried out. The survey asked about well-being and HRBs in the last six months. **Results:** Univariate analyses showed that HRBs were associated with well-being outcomes. Positive well-being was associated with higher fruit consumption, more frequent breakfast consumption, longer hours of sleep, higher tea consumption, not smoking, lower chocolate intake, lower cola consumption, and not being an emotional eater. Negative well-being was associated with the opposite HRB profile. When established predictors of well-being were included in the regression model, most of the associations between HRBs and well-being outcomes were no longer significant. The exceptions were frequent fruit and breakfast consumption and positive well-being, and short sleep and negative well-being. **Conclusion:** Health-related behaviours were associated with well-being and outcomes. These associations were generally not significant when established predictors of well-being and health were included in the analyses. Indeed, only the associations between breakfast and fruit consumption and positive well-being, and negative well-being and short sleep, remained significant. These results confirm findings from surveys of students. Further research with longitudinal designs and interventions is required to identify causality and underlying mechanisms.

KEYWORDS: Nurses; Well-being; Health Related Behaviours; Diet; Exercise; Sleep; Breakfast; Fruit; Cola; Energy Drinks; Coffee; Tea.

INTRODUCTION

Diet and other health-related behaviours (HRBs), such as smoking, alcohol consumption, sleep and exercise, are major public health issues. Health and well-being are associated, with health status influencing well-being, and changes in well-being affecting health.^[1-10] One might expect, therefore, that health-related behaviours are associated with well-being. Most research in this area has used a simplistic model of well-being focusing solely on positive (e.g., happiness, life satisfaction, positive affect) or negative (e.g., stress, negative affect, anxiety, and depression) outcomes. A more holistic approach to well-being has been developed,^[11-12] and this well-being process model was used in the present study.

The well-being process model was developed from the Demands-Resources-Individual-Effects (DRIVE) model of stress.^[13-16] This model included negative (e.g., job demands) and positive (e.g., control, social support) job characteristics. Individual differences in coping and attributional style were also included, as were positive and negative outcomes. The well-being process model

included further positive and negative job characteristics, individual characteristics such as psychological capital, and well-being outcomes used in other approaches to well-being. The Well-being Process Questionnaire (WPQ) was developed to measure these constructs and has been extensively used with different groups of workers.^[17-43] The general results from this research have shown that positive outcomes are largely predicted by positive work and individual characteristics and, to a lesser extent, by the absence of negative factors. Negative outcomes are predicted by the opposite profile of work and individual characteristics. A major advantage of the WPQ is that it is short, and other questions can be added to the survey to examine associations between other factors and the well-being process.

Recent research has used the well-being process model to examine associations between HRBs and the well-being of adolescents and young adults. The initial studies largely focused on diet. One study^[44] investigated this area in a sample of secondary school students. Initial

univariate analyses revealed that health-related behaviours were associated with many well-being outcomes. However, when the established predictors of well-being were included in the regression models, many of the associations no longer achieved significance. However, some remained significant, with positive well-being being associated with higher fruit and vegetable consumption and lower consumption of fast food/takeaways.

Two further studies have examined the associations between well-being and HRBs in samples of university students.^[45, 46] These studies had a wider focus and examined HRBs such as smoking, alcohol consumption, as well as diet, exercise, and sleep. The first study^[45] of university students collected data as soon as they arrived at the university and asked about the time when they were still living at home. Again, univariate analyses revealed associations between the HRBs and well-being and health outcomes. When established predictors of well-being were included in the analyses, most of the associations between HRBs and well-being outcomes were no longer significant. However, smoking and infrequent exercise were associated with poor physical health.

The latest study^[46] involved a survey of university students who had been at university for 6-30 months. Univariate analyses confirmed that established predictors of well-being were associated with the well-being outcomes. HRBs were also correlated with well-being outcomes. Regressions, including established predictors and HRBs in the model, demonstrated that most of the associations between HRBs and outcomes were no longer significant. Some of the associations remained significant. For example, smoking was associated with higher negative well-being, whereas good sleep and more frequent consumption of alcohol were associated with lower negative well-being.

The aim of the present study was to extend the previous studies of students to the investigation of a working sample. The well-being and HRBs of nurses have been frequently studied, and they formed the sample in the present research. The first hypothesis was that well-being outcomes would be predicted by established work and individual predictors. The second was that HRBs would be correlated with well-being outcomes. The final hypothesis was that many of the associations between HRBs and well-being outcomes would no longer be significant when the established well-being predictors were covaried.

MATERIALS AND METHODS

An online survey was carried out. It had the approval of the Ethics Committee, School of Psychology, Cardiff University and the informed consent of the participants.

Participants:

One hundred and seventy nurses (155 female; 15 male; age range 19-69, mean age: 40 years) took part in the study. Most of the volunteers were married or living with a partner (66%) and were educated to a degree or higher degree level (86.6%). Participants were from all areas of nursing, including managers, practitioners, and educators. Participants were recruited through the Royal College of Nursing. They were given £10 gift vouchers and entered into a prize draw (3 prizes of £100).

Materials:

The questionnaire contained the Well-being Process Questionnaire and questions relating to diet and lifestyle (exercise, hours of sleep, smoking and alcohol consumption). These additional questions are shown below:

Lifestyle Questions:

In this section, we are interested in finding out about how you live your life.

1. Do you smoke cigarettes now?

Yes No

2. How many cigarettes do you smoke per day?

3. On average, how often do you drink during the week, that is weekdays?

Please tick ONE BOX only.

Never	1 - 2 Days	3 Days	4 Days
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4. How many units do you drink during an average week? _____ units

(1 unit = half a pint of beer/glass of wine/1 measure of spirits)

5. On average, how often do you drink at the weekends? Please tick ONE BOX only.

Never	1 - 2 Days	All 3 Days
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6. How many units do you drink on an average weekend? _____ units

7. How often do you eat breakfast?

Every day	Most days (3-6)	Once or twice a week	Less than once a week	Never
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8. How often do you eat beans or peas?

Every day	Most days (3-6)	Once or twice a week	Less than once a week	Never
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9. How often do you eat wholemeal or whole-grain bread?

Every day	Most days (3-6)	Once or twice a week	Less than once a week	Never
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10. How often do you eat high-fibre food (e.g. bran; fruit, vegetables, nuts, seeds, pulses)?

Every day	Most days (3-6)	Once or twice a week	Less than once a week	Never
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11. How often do you have a snack or something to eat between meals or before going to bed?

Every day Most days Once or twice a week Less than once a week Never

12. When I feel anxious, I find myself eating.
Definitely true(4) mostly true (3) mostly false (2) definitely false (1)

13. When I feel depressed, I find myself eating.
Definitely true(4) mostly true (3) mostly false (2) definitely false (1)

14. When I feel lonely, I console myself by eating.
Definitely true(4) mostly true (3) mostly false (2) definitely false (1)

15. Do you drink tea
Yes ¹ No ⁰

16. What type of tea do you usually drink?

Caffeinated <input type="checkbox"/> ₀	Fruit / Herbal <input type="checkbox"/> ₂
Decaffeinated <input type="checkbox"/> ₁	Other <input type="checkbox"/> ₃

17. On average, how many cups of tea do you drink per day?

18. Do you drink coffee?
Yes ₁ No ₀

19. What type of coffee do you usually drink?

Caffeinated <input type="checkbox"/> ₀
Decaffeinated <input type="checkbox"/> ₁

20. On average, how many cups of coffee do you drink per day?

21. Do you drink cola?
Yes ₁ No ₀

22. What type of cola do you usually drink?

Caffeinated <input type="checkbox"/> ₀
Decaffeinated <input type="checkbox"/> ₁

23. On average, how many colas do you drink per day?

24. Do you drink energy drinks?

Yes ₁ No ₀

25. On average, how many energy drinks do you have per day?

26. Which of the following foods have you eaten in the last week as a snack?

	Twice or more a day	Once a day	5-6 times a week	3-4 times a week	Twice a week	Once a week	Not at all
Fresh fruit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Crisps	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Chocolate confectionery	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Yoghurt	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Dried fruit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Cereal bar	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Biscuits	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Breakfast cereal	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Nuts	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Cake / cake bars	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
Toast / bread with spread	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇

27. How often do you take part in sports OR activities that are:

(Please tick ONE box per category)

	Three times a week or more	once or twice a week	about once to three times a month	never/ hardly ever
a) Mildly energetic (e.g. walking, woodwork, weeding, hoeing, bicycle repair, playing darts, general housework)	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

b) Moderately energetic (e.g. scrubbing, polishing the car, chopping, dancing, golf, cycling, decorating, lawn mowing, leisurely swimming)	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
c) Vigorous (e.g. running, hard swimming, tennis, squash, digging, cycle racing, aerobics)	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

28. Please give the average number of hours per week you spend in such sports or activities.

- a. Mildly energetic: Hours
 b. Moderately energetic : Hours
 c. Vigorous: Hours

29. How many hours of sleep do you have on an average weeknight?

5 hours or less	6 hours	7 hours	8 hours	9 hours or more
<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Statistical analyses:

Initial univariate analyses examined the association between health-related behaviours and well-being outcomes. Next, separate regressions were carried out with positive well-being and negative well-being as outcomes. The predictor variables were health-related behaviours and established well-being predictors.

RESULTS

Univariate analyses of associations between health-related behaviours, well-being predictors and outcomes.

Positive and negative well-being scores were highly correlated ($-0.85 p < 0.001$).

Positive well-being was associated with the following:

- Low chocolate consumption
- High fruit consumption
- Frequent breakfast consumption
- Being a non-smoker
- Longer hours of sleep
- Not being an emotional eater (not eating when anxious, depressed or lonely)
- High tea consumption
- Low cola consumption.

Negative well-being was associated with an opposite profile of associations.

The significant correlations between the health-related behaviours variables and the well-being outcomes are summarized in Table 1.

Table 1: Significant correlations between health-related Behaviours and Well-being outcomes

	Negative well-being	Positive well-being
Low smoking	-0.23 $p < 0.005$	0.28 $p < 0.001$
Low chocolate	-0.16 $p < 0.05$	0.22 $p < 0.005$
Infrequent breakfast	0.17 $p < 0.05$	-0.28 $p < 0.001$
Low fruit	0.13 $p > 0.05$	-0.25 $p < 0.001$
High tea	-0.22 $p < 0.005$	0.19 $p < 0.05$
High cola	0.28 $p < 0.001$	-0.24 $p < 0.001$
Infrequent anxious eating	-0.26 $p < 0.001$	0.21 $p < 0.005$
Infrequent depressed eating	-0.27 $p < 0.001$	0.26 $p < 0.001$
Infrequent loneliness eating	-0.26 $p < 0.001$	0.27 $p < 0.001$
Long sleep	-0.30 $p < 0.001$	0.20 $p < 0.01$

Multivariate analysis of Predictors and Well-being

Separate regressions were carried out for the positive and negative well-being outcomes. The established predictors of well-being were included, as were the significant health-related behaviours from the correlational analyses. The results are shown in Table 2. Positive well-being was significantly predicted by:

- High psychological capital (high self-esteem, self-efficacy and optimism)
- High social support
- Low negative coping (Self-blame; wishful thinking; avoidance)
- Frequent fruit consumption
- Frequent breakfast consumption

- Infrequent eating when depressed.
- Negative well-being was predicted by:
- High job demands
 - High negative coping
 - Low psychological capital
 - Low social support
 - Short sleep

Table 2: Significant predictors of Positive and Negative well-being outcomes.

	Standardised Beta	t-value	p-value
Positive Well-being:			
Psychological capital	0.43	6.84	<0.001
Social support	0.25	4.08	<0.001
Negative coping	-0.20	-3.31	<0.005
Infrequent Breakfast	-0.09	-1.68	<0.05 1-tail
Low Fruit	-0.14	-2.67	<0.01
Infrequent depressed eating	0.24	2.24	<0.05
Negative well-being			
Job demands	0.18	3.53	<0.001
Negative coping	0.27	4.67	<0.001
Psychological capital	-0.36	-6.08	<0.001
Social support	-0.17	-2.81	<0.01
Hours of sleep	-0.16	-3.05	<0.005

DISCUSSION

Previous research with students has shown that HRBs are correlated with well-being outcomes but that many of these associations are no longer significant when psychosocial predictors of well-being are covaried. The present study, with a sample of nurses, confirmed these findings. In all of the studies, the established predictors of well-being had significant associations with the well-being outcomes, which gives one confidence in the more novel results.

The more robust associations between HRBs and positive well-being were the consumption of breakfast, fruit and infrequent emotional eating. These findings confirm the extensive literature on the beneficial effects of these aspects of diet.^[45-47] In contrast, no aspects of diet were associated with negative well-being. Indeed, the only HRB to be associated with negative well-being was fewer hours sleeping. Again, this confirms previous results which have demonstrated reliable associations between sleep and well-being.^[48]

Other HRBS, such as exercise and alcohol consumption, showed no evidence of associations with well-being. This may reflect the limited range of scores for these variables in the present sample. The study had a number of limitations. First, it was a cross-sectional study which makes it difficult to define causality. Indeed, reverse causality may occur, with well-being influencing diet rather than diet-changing well-being. Longitudinal studies with interventions are required to identify the causal mechanisms linking HRBs and well-being. The present sample was also rather specific, covering one occupational sector, nursing, and consisting of mainly female participants. Future research should use a sample which is more representative of the working population.

CONCLUSION

Previous research has investigated associations between HRBs and the well-being of students. The well-being process questionnaire (WPQ) provided a holistic approach to well-being and was used in the present study involving a survey of nurses. Diet, sleep, smoking, exercise and alcohol consumption were also measured.

The online survey asked questions about HRBs and well-being in the last six months. Univariate analyses showed that HRBs were correlated with well-being outcomes. Positive well-being was associated with not smoking, longer hours of sleep, more frequent fruit consumption, more frequent breakfast, higher tea consumption, lower chocolate intake, lower cola consumption, and not being an emotional eater. Negative well-being was associated with the opposite HRB profile. When established psychosocial predictors of well-being were included in the analyses, most of the associations between well-being outcomes and HRBs were no longer significant. The exceptions were associations between frequent breakfast and fruit consumption and positive well-being, and negative well-being and short sleep. The established predictors had their usual significant associations with well-being. These results confirm earlier findings from studies of students. Future research should have longitudinal designs and interventions so that causality and underlying mechanisms can be identified.

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