The well-being and health of nurses

Andrew P. Smith

Centre for Occupational and Health Psychology, School of Psychology, Cardiff University.
E-mail:smithap@cardiff.ac.uk

Abstract— **Previous research has demonstrated a two-way relationship between well-being and health. A recent study of university staff has shown that many of the associations between well-being outcomes and physical health are no longer significant when established predictors of well-being are covaried. Well-being and health were not predicted by the same work and individual characteristics. The present study extended this line of research by conducting an online survey with a sample of nurses (N= 170; age range 19-69, mean age: 40 years; 15 male, 155 female). The survey involved the Well-being Process Questionnaire (WPQ) and questions about sick leave, use of health services, illness caused or made worse by work, chronic and acute symptoms, and medication. Initial analyses showed significant associations between the well-being outcomes and some of the health measures. The well-being outcomes were associated with the usual established work and individual predictors. Health outcomes were not associated with the well-being predictors, and the associations with well-being outcomes were not associated with the health measures when the work and individual characteristics were covaried. Further research is required to determine when associations between well-being and health occur and to identify the mechanisms underlying these relationships.**

Introduction

The World Health Organization's (WHO) definition of health involves mental, physical, and social well-being, not just the absence of disease. The WHO consider that "well-being exists in two dimensions, subjective and objective. It comprises an individual's experience of their life as well as a comparison of life circumstances with social norms and values". [1] The subjective experiences include the overall sense of well-being, affective states and psychological functioning. The life circumstances include social relationships, health, education, the environment, housing, work-life balance, civic engagement, and security. Research has shown that there is a two-way relationship between health and well-being. [2] People often consider health as the main factor influencing well-being. [3] Well-being, involving higher life satisfaction, is also associated with good health. [4] The association between well-being and health depends on the measures, but research suggests that this topic should be a major public health issue. [5]

Both mental and physical health can be associated with well-being. [6] Mental health outcomes are often seen as part of well-being, which could account for the strong associations between the two concepts. [7]. Chronic ill health is also associated with reduced well-being. [8] Research has shown significant correlations between well-being and long-term health outcomes such as cardiovascular health, disease progression and longevity. [9, 10] There has been less research on the relationship between well-being and acute symptoms in a younger, generally healthy population.

A recent study [11] examined associations between acute physical health problems and well-being in a sample of university staff. Physical health problems were significantly correlated with negative well-being and showed a trend of negative associations with positive well-being measures. Established predictors of well-being were not significantly associated with physical health. Sleep and gastrointestinal problems were, however, associated with the well-being outcomes.

The model of well-being used in the research on university staff and in the present study was the well-being process approach [12, 13], which was developed from the Demand-Resources-Individual-Effects (DRIVE) stress model. [14-17] The Well-being Process Questionnaire (WPQ) includes positive outcomes (e.g. happiness, positive affect, and life and job satisfaction) and negative outcomes (e.g. fatigue, stress, negative affect, depression and anxiety). Positive (e.g., support and control) and negative (e.g., job demands) work characteristics that predict the well-being outcomes were also included. Positive (e.g., high psychological capital, positive coping) and negative characteristics (e.g., negative coping) of the person were also included. Positive work and individual characteristics predict positive outcomes and negative characteristics predict negative outcomes. The absence of negative predictors can also lead to positive outcomes, and the absence of positive predictors can lead to negative outcomes. These results have been found in research involving both specific industry sectors and the general population. [18-45]

In the study of university staff, physical health was measured by the Physical Health Questionnaire [46]. Factor analysis of this questionnaire showed that it measured four types of symptoms, namely, headaches, gastrointestinal symptoms, respiratory illness and sleep disturbance. The present study involved a wider range of physical health outcomes based on large-scale epidemiological studies of workers [47-50]. Use of health services and sick leave were recorded. Chronic and acute symptoms were also assessed.

In summary, the present study aimed to evaluate associations between well-being outcomes and physical and mental health outcomes. Secondly, analyses examined the work and individual characteristics that were associated with well-being and health outcomes.

II. MATERIALS AND METHODS

A. Study Design

An online survey was carried out. The study was approved by the Ethics Committee, School of Psychology, Cardiff University and conducted with the informed consent of the participants.

B. Participants

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

C. Materials

The questionnaire contained the Well-being Process Questionnaire and questions relating to health. These additional questions are shown in Table 1.

Table 1. Health Questions:

1. Approximately how many days of sick leave have you had in the last 12 months? (Please tick one box)

   None   1-5   6-10   11-15   >15

2. Thinking about the past year, have you suffered from any illness that you think was caused or made worse by work?

3. Approximately how many days of sick leave have you had in the last 12 months?

   None   1-5   6-10   11-15   More than 15   Not applicable

4. Approximately how many times have you visited the hospital in the last 12 months?

   None   1-3   4-6   7-9   More than 9

5. Have you ever been told by the doctor that you have, or have had, any of the following? Please tick Yes or No for EACH of the categories in the following list.

Angina or a heart attack   Yes ☐ No ☐

High cholesterol, diabetes

or high blood pressure   Yes ☐ No ☐

Nervous trouble or depression   Yes ☐ No ☐

Asthma or Bronchitis   Yes ☐ No ☐

Breast cancer or other cancer   Yes ☐ No ☐

6. There are some kinds of health problems that keep recurring and some that people have all the time. In the last 12 months, have you suffered from any of the following health problems?

   Please tick Yes or No for EACH of the categories in the following list.

Bronchitis, Asthma or Hay Fever   Yes ☐ No ☐

Arthritis, rheumatism, sciatica,

lumbago or recurring backache   Yes ☐ No ☐

Recurring stomach trouble

or indigestion   Yes ☐ No ☐

Nervous trouble or persistent

depression   Yes ☐ No ☐

7. Have you had any of the following symptoms in the last 14 days?

   Please tick Yes or No for EACH of the categories in the following list.

A cough, cold or sore throat   Yes ☐ No ☐

Diarrhoea, nausea or vomiting   Yes ☐ No ☐

Shortness of breath, chest pain,

wheeziness   Yes ☐ No ☐

Nervy, tense or depressed   Yes ☐ No ☐

Difficulty sleeping, feeling tired

for no apparent reason   Yes ☐ No ☐

8. Have you taken any of the following medicines prescribed by a doctor? Please tick one box in each column to indicate whether you have taken each medicine in the LAST 14 DAYS, in the LAST MONTH, and in the LAST YEAR.

Painkillers, indigestion medicine, laxatives

   In the last 14 days   Yes ☐ No☐

   In the last month   Yes ☐ No☐

   In the last year   Yes ☐ No☐

Sleeping pills, anti-depressants   Yes ☐ No☐

   In the last 14 days   Yes ☐ No☐

   In the last month   Yes ☐ No☐

   In the last year   Yes ☐ No☐

III. 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 the health measures and the established well-being predictors.

IV   RESULTS

A.   Univariate analyses of associations between health and well-being outcomes

Positive and negative well-being scores were highly correlated (-0.85 p < 0.001). The significant correlations between the health-related behaviours variables and the well-being outcomes are summarised in Table 2.

Table 2. Significant correlations between chronic health problems and well-being outcomes

	Positive well-being	Negative well-being
High sick leave	-0.24 p<0.001	0.25 p<0.001
High hospital visits	-0.28 p<0.001	0.22 p<0.005
Low illness caused by work	0.25 p<0.001	-0.29 p <0.001
Low mental health problems	0.35 p<0.001	-0.35 p<0.001
Low asthma	0.15 p< 0.05	-0.12 ns
Low cancer	0.15 p<0.05	-0.13 ns

Positive well-being was significantly associated with the following:

- Low sick leave
- Fewer hospital visits
- Low mental health problems
- Low asthma
- Low cancer
- Fewer difficulties sleeping

Negative well-being showed the opposite profile of associations.

With regards to the acute symptoms, positive well-being was associated with fewer mental health problems, less difficulty in sleeping and less use of sleeping pills/psychotropic medication. Negative well-being showed the opposite profile of associations. In addition, high negative well-being was associated with more frequent use of painkillers. The significant correlations are shown in Table 3.

Table 3. Significant correlations between acute health problems and well-being outcomes

	Positive well-being	Negative well-being
Low mental health problems	0.48 p <0.001	-0.52 p <0.001
Fewer difficulties sleeping	0.26 p<0.001	-0.30 p<0.001
Fewer sleeping pills last 14 days	0.30 p<0.001	-0.33 p<0.001
Fewer painkillers last 14 days	0.14 ns	-0.18 p<0.05

B. 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 in the model. The results are shown in Table 4.

Table 4. Significant predictors of positive and negative well-being outcomes.

	Standardised Beta	t	p
Positive Well-being:			
Psychological capital	0.40	6.41	<0.001
Social support	0.35	6.01	<0.001
Negative coping	-0.33	-5.68	<0.005
Negative well-being			
Job demands	0.22	4.72	<0.001
Negative coping	0.35	6.55	<0.001
Psychological capital	-0.34	-5.82	<0.001
Social support	-0.23	-4.24	<0.001

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)

Negative well-being was predicted by:

- High job demands
- High negative coping

- Low psychological capital

- Low social support

The results of these regressions confirm previous findings. This gives more confidence in any more novel associations with health outcomes. The significant health outcomes from the correlational analyses were then included as dependent variables in regressions with the established predictors of well-being and the well-being outcomes as independent variables. There were no significant predictors of the following variables:

- Sick leave

- Hospital visits

- Asthma

- Cancer

- Difficulties sleeping

- Use of sleeping pills

- Use of painkillers

Low mental health problems were predicted by low negative coping (standardised beta = -0.17 t= -2.02 p < 0.05). High levels of illness caused by work were predicted by high job demands (standardised beta =0.17 t= 1.99 p < 0.05) and high levels of bullying (standardised beta = -0.16 t = 2.20 p < 0.05).

V DISCUSSION

Research shows that well-being is associated with health and that health can change well-being. It is important to have a model of well-being, and the well-being process model was used here. A major feature of this model is to include both positive and negative well-being outcomes. It is also important to include a number of measures of health, and the present study included absence from work due to illness, use of health services, illness caused by work, chronic disease, recurrent illness, recent acute symptoms and use of medication.

The present research showed significant associations between both positive and negative well-being and the nurses' sick leave and hospital visits for ill health. Illness caused or made worse by work was also associated with both positive and negative well-being. There were also significant associations between the well-being outcomes and chronic disease (cancer), recurrent illness (asthma), mental health, sleep and use of psychotropic medication.

The well-being outcomes were significantly associated with established psychosocial predictors. Greater positive well-being was associated with greater psychological capital and social support scores. It was also associated with lower levels of negative coping. Greater negative well-being was associated with higher job demands and negative coping. Negative well-being was negatively associated with psychological capital and social support. The significance of these established predictors gives more confidence in the more novel findings reported here.

Multivariate analyses with the health outcomes as dependent variables showed that most of the associations with the well-being outcomes were no longer significant when the established predictors from the well-being process model were included as covariates. Indeed, there were no significant predictors for many of the outcomes, which suggests that there may be many factors having very small associations with health. Illness caused or made worse by work was associated with negative job characteristics, namely high job demands and bullying. Mental health problems were significantly associated with negative coping.

The present study had a number of limitations. It was a cross-sectional survey, which means that it is difficult to infer causality. Longitudinal studies with interventions should be conducted in order to identify underlying mechanisms. The sample was small and recruited from a specific occupational sector. Future research must investigate whether the results obtained in the present study apply to the general population. The health measures used here also appear to be less sensitive than those used in other approaches to health status.

VI CONCLUSION

Previous studies have demonstrated a bi-directional relationship between health and well-being. A similar study to the present one involved a sample of university staff. The results showed that most of the associations between well-being and health were no longer significant when established psychosocial predictors of well-being were covaried. Well-being and health were not predicted by the same individual or work characteristics. The present study extended this research with an online survey of a sample of nurses. The survey involved questions about sick leave, use of health services, illness caused or made worse by work, chronic and acute symptoms, and medication use. The initial analyses revealed significant associations between both the positive and negative well-being outcomes and certain health measures. The well-being outcomes were associated with the established work and psychosocial predictors. Health outcomes were not associated with these well-being predictors. The associations between the health and well-being outcomes were not significant when the work and individual characteristics were included in the regression models. Further research is now required to identify when significant associations between health and well-being occur and to identify mechanisms underlying such relationships.

VII REFERENCES

1. WHO. Measurement of and target-setting for well-being: an initiative by the WHO Regional Office for Europe, report of the second meeting of the expert group, Paris, France 25-26 June 2012.

2. Stoll L, Michaelson J, Seaford, C. Well-being evidence for policy: a review. New Economics Foundation, London 2012.

3. ONS. Measuring What Matters – National Statistician's Reflections on the National Debate on Measuring National Well-being, ONS July 2011.

4. Haller M, Hadler M. How social relations and structures can produce happiness and unhappiness: An international comparative analysis, Social Indicators Research. 2006; 75(2): 169-216.

5. Diener E, Chan MY. Happy People Live Longer: Subjective Well-being Contributes to Health and Longevity, Applied Psychology: Health and Well-being, 2011; 3(1): 1-43.

6. Dolan P, Peasgood T, White M. Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being, Journal of Economic Psychology. 2008; 29(1): 94-122.

7. Keyes CLM., 2005, Mental illness and/or mental health? Investigating axioms of the complete state model of health, Journal of Consulting and Clinical Psychology, 2005; 73(3): 539-548.

8. Shields MA, Price SW. Exploring the economic and social determinants of psychological well-being and perceived social support in England, Journal of the Royal Statistical Society: Series A (Statistics in Society). 2005; 168(3): 513-37.

9. Howell RT, Kern ML, Lyubomirsky S. Health benefits: Meta-analytically determining the impact of well-being on objective health outcomes, Health Psychology Review. 2007; 1(1): 83-136.

10. Steptoe A, Deaton A, Stone AA. Subjective well-being, health, and ageing. Lancet. 2015 Feb 14;385(9968):640-648. doi: 10.1016/S0140-6736(13)61489

11. Smith AP. The well-being and physical health of university staff. World Journal of Pharmaceutical and Medical Research. 2023; 9 (9).

12. Williams, G, Smith AP. Measuring well-being in the workplace: Single item scales of depression and anxiety. In Contemporary Ergonomics and Human Factors 2013. Martin Anderson (ed). CRC Press: Taylor & Francis. London. ISBN 978-1-138-00042-1. Pg 87-94.

13. Williams GM, Smith, A.P. A holistic approach to stress and well-being. Part 6: The Well-being Process Questionnaire (WPQ Short Form). Occupational Health (At Work). 2012; 9/1: 29-31.

14. Mark GM, Smith AP. Stress models: A review and suggested new direction. In: Occupational Health Psychology: European Perspectives on Research, Education and Practice. 2008; Vol. 3: 111-144. EA-OHP series. Edited by J. Houdmont & S. Leka. Nottingham University Press.

15. Mark G, Smith AP. Effects of occupational stress, job characteristics, coping and attributional style on the mental health and job satisfaction of university employees. Anxiety, Stress and Coping. 2011; 25, 63-78. doi: 10.1080/10615806.2010.548088

16. Mark G, Smith AP. Occupational stress, job characteristics, coping and mental health of nurses. British Journal of Health Psychology. 2012; 17: 505-521. doi: 10.1111/j.2044-8287.2011.02051.x

17. Margrove G, Smith AP. The Demands-Resources-Individual Effects (DRIVE) Model: Past, Present and Future Research Trends. Chapter 2, in "Complexities and Strategies of Occupational Stress in the Dynamic Business World". Edited by Dr Adnam ul Haque. IGI Global. 2022; doi: 10.4018/978-1-6684-3937-1

18. Williams G, Smith AP. Measuring well-being in the workplace: Single item scales of depression and anxiety. In Contemporary Ergonomics and Human Factors 2013. Martin Anderson (ed). CRC Press: Taylor & Francis. London. Pg 87-94.

19. Smith AP. Stress and well-being at work: An update. In Contemporary Ergonomics and Human Factors 2015. Sarah Sharples, Steve Shorrock & Pat Waterson (eds). CRC Press: Taylor & Francis. London. ISBN 978-1-138-02803-6. Pg 415-422.

20. Galvin J, Smith AP. Stress in trainee mental health professionals: A multi-dimensional comparison study. British Journal of Education, Society & Behavioural Science. 205; 9: 161-175.

21. Nelson K, Smith AP. Occupational stress, coping and mental health in Jamaican police officers. Occupational Medicine. 2016. doi: 10.1093/occmed/kqw055.

22. Williams GM, Smith AP. Using single-item measures to examine the relationships between work, personality, and well-being in the workplace. Psychology: Special Edition on Positive Psychology. 2016; 7: 753-767.

23. Smith AP, Smith, H.N. A short questionnaire to measure well-being at work (Short-SWELL) and to examine the interaction between the employee and organisation. In: Charles, R. & Wilkinson, J. eds. Contemporary Ergonomics and Human Factors 2017. Chartered Institute of Ergonomics and Human Factors. ISBN: 978-1-5272-0762-2. Pg 200-205.

24. Smith AP, Smith, H.N. An international survey of the well-being of employees in the business process outsourcing industry. Psychology. 2017; 8:160-167. DOI:10.4236/psych.2017.81010

25. Smith AP, Smith H.N. Effects of noise on the well-being of railway staff. ICBEN 2017. http://www.icben.org/2017/ICBEN%202017%20Papers/SubjectArea06_Smith_0602_2460.pdf

26. Fan J, Smith AP. Positive well-being and work-life balance among UK railway staff. Open Journal of Social Sciences. 2017; 5: 1-6. http://dx.doi.org/10.4236/jss.2017.56001

27. Williams G, Thomas K, Smith, A.P. Stress and Well-being of University Staff: an Investigation using the Demands-Resources- Individual Effects (DRIVE) model and Well-being Process Questionnaire (WPQ). Psychology. 2017; 8: 1919-1940. https://doi.org/10.4236/psych.2017.812124

28. Fan J, Smith AP. The Mediating Effect of Fatigue on Work-Life Balance and Positive Well-being in Railway Staff. Open Journal of Social Sciences. 2018; 6: 1-10. Doi: 10.4236/jss.2018.66001

29. Nor NIZ, Smith AP. The Association between Psychosocial Characteristics, Training Variables and Well-being: An Exploratory Study among Organizational Workers. International Journal of Psychological and Behavioral Sciences. 2018; Vol:5, No:6. World Academy of Science, Engineering and Technology.

30. Nor NIZ, Smith AP. 2018. Attitudes to Training and Its Relation to the Well-being of Workers. Journal of Education, Society and Behavioural Science. 2018; 27(2): 1-19. DOI: 10.9734/JESBS/2018/44445

31. Ahmad MI, Firman K, Smith H, Smith AP. Short Measures Of Organisational Commitment, Citizenship Behaviour And Other Employee Attitudes And Behaviours: Associations With Well-being, BMIJ. 2018; 6(3): 516-550 doi: http://dx.doi.org/10.15295/bmij.v6i3.391

32. Ahmad MI, Firman K, Smith H, Smith AP. Psychological Contract Fulfilment and Well-being. Advances in Social Sciences Research Journal. 2018; 5(12): 90-101. doi:10.14738/assrj.512.5758.

33. Langer J, Smith AP, Taylour, J. Occupant psychological well-being and environmental satisfaction after an open-plan office redesign. In: Charles, R. & Golightly, D. (eds), Contemporary Ergonomics and Human Factors 2019. Chartered Institute of Ergonomics and Human Factors. Pp. 223-233.

34. Omosehin O, Smith, A.P. Adding new variables to the Well-being Process Questionnaire (WPQ) – Further studies of Workers and Students. Journal of Education, Society and Behavioral Science. 2019; 28(3): 1-19, DOI: 10.9734/JESBS/2018/45535

35. Smith AP, Smith HN. Well-being at work and the lie scale. Journal of Health and Medical Sciences. 2019; 2(1): 40-51. DOI: 10.31014/aior.1994.02.01.18

36. Nor NIZ, Smith, AP. Psychosocial Characteristics, Training Attitudes and Well-being of Students: A Longitudinal Study. Journal of Education, Society and Behavioral Science. 2019; 29(1): 1-26; DOI: 10.9734/JESBS/2019/v29i130100

37. Smith AP. Stress and well-being of Nurses: An Update. International Journal of Arts, Humanities and Social Science. 2019; 4(6): 1-6. http://www.ijahss.com/Paper/04062019/1179495063.pdf

38. Smith AP. Alcohol, Smoking, Well-being and Health and Safety of Workers. Journal of Health and Medical Sciences. 2019; 2(4): 429-448. DOI: 10.31014/aior.1994.02.04.67

39. Zhang J, Li H, Ma Y, Smith AP. Switch Off Totally or Switch Off Strategically? The Consequences of Thinking about Work on Job Performance. Psychological Reports. 2020; https://doi.org/10.1177%2F0033294120968080

40. Smith AP. A combined effects approach to the Demands-Resources-Individual Effects (DRIVE) model of well-being. International Journal of Humanities Social Sciences and Education (IJHSSE). 2021; 8(9): 28-38. https://doi.org/10.20431/2349-0381.0809003

41. Williams G, Pendlebury H, Smith AP. Stress and the Well-being of Nurses: An Investigation using the Demands-Resources- Individual Effects (DRIVE) model and the Well-being Process Questionnaire (WPQ). Advances in Social Science Research Journal. 2021; 8(8): 575-586. DOI:10.14738/assrj.88.10782

42. Zhang J, Smith AP. A new perspective on the effects of different types of job demands on the well-being of a sample of Chinese workers. International Journal of Business and Social Science. 2021; 12 (6), 61-68. doi:10.30845/ijbss.v12n6p8

43. Smith AP, James A. The well-being of working mothers before and after a COVID-19 lockdown. Journal of Education, Society and Behavioural Science. 2021; 34(11): 133-140, DOI: 10.9734/JESBS/2021/v34i1130373.378.

44. Langer J, Taylour J, Smith AP. Noise exposure, satisfaction with the working environment and the well-being process. ICBEN2021. http://www.icben.org/2021/ICBEN%202021%20Papers//full_paper_28010.pdf

45. Smith AP. A holistic approach to the well-being of nurses: A combined effects approach. Advances in Social Science Research Journal. 2022; 9 (1): 475-484. Doi: 10.14738/assrj.91.11650

46. Schat ACH, Kelloway EK, Desmarais S. The Physical Health Questionnaire (PHQ): Construct validation of a self-report scale of somatic symptoms. Journal of Occupational Health Psychology. 2005; 10(4):363-381. doi: 10.1037/1076-8998.10.4.363.

47. Smith A, Johal SS, Wadsworth E, Davey Smith G, Peters T. The Scale of Occupational Stress: the Bristol Stress and Health at Work Study. HSE Books. 2000. Report 265/2000.

48. Smith A, Wadsworth E, Moss S, Simpson S. The scale and impact of psychotropic medication use by workers. HSE Research Report. 2004; 282. HSE Books. ISBN 07176 29163

49. Smith A, Wadsworth E, Shaw C, Stansfeld S, Bhui K, Dhillon, K. Ethnicity, work characteristics, stress and health. HSE Research Report. 2005; 308. HSE Books. ISBN 07176 2953 8.

50. Smith AP, Wadsworth EJK, Chaplin K, Allen PH, Mark, G. The relationship between work/well-being and improved health and well-being. IOSH. Leicester. 2011; 11.1