A Holistic Approach to the Well-Being of Nurses: A Combined Effects Approach

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ABSTRACT

Well-being at work is a major occupational health and safety issue for nurses. Past research shows that investigation of the well-being of nurses requires a multi-faceted approach which considers a range of predictors and outcomes. Research on topics such as stress and fatigue show that combining risk factors leads to the best predictor of these negative outcomes, and similar results have been found for positive outcomes. Organisational factors, rather than operational ones, have the greatest impact on well-being. Aim The present study compared the predictive power of the combined risk factors based on organisational and personal characteristics from the Well-being Process Questionnaire (WPQ) with the Expanded Nurses Stress Scale (ENSS) which covers a range of operational issues such as dealing with death and dying, interacting with relatives of patients and issues with senior members of staff, and with recent hassles (H) and the extent to which they were flourishing (F) Method A secondary analysis of data collected by Williams, Pendlebury and Smith (2017) was carried out. This study had a sample of 178 nurses who were given the WPQ, ENSS, and the H and F scales. The predictors of well-being (job demands, job resources, social support, coping styles and positive personality) were used to create a single score (negative predictors – positive predictors). The outcomes were also summed to create a single well-being score (negative outcomes-positive outcomes). The initial analysis examined the association between the combined predictors score, the ENSS score, the H and F scores and the well-being outcome. All of the variables were then included in a single regression analysis. Results Univariate analyses showed significant correlations between the independent variables and the well-being score. Regression analyses showed a significant effect of the combined predictors score on well-being. The ENSS score was no longer significant, but the H and F scores had additional significant effects on well-being. Conclusion The combined effects of established predictors of well-being were demonstrated in this study. Addition of the ENSS score had no significant effect, and the univariate association of it with well-being could be accounted for by the combined effects score. Hassles and flourishing scores did have a significant effect on well-being, even when combined effects were included in the model.

Keywords: well-being, expanded nurses stress scale, hassles, flourishing, combined effects

This research article describes the development of a holistic approach to wellbeing.   The aim of the article is to present a measure of wellbeing that can inform policy and practice in nursing and other professions. A novel method of analysis is also described, and this uses the combined effects of key predictors of wellbeing and both positive and negative outcomes. The first section of the paper provides a theoretical and conceptual rationale for the combined effects approach to the wellbeing process. After presentation of the background to the current approach, an example is given which involves a secondary analysis of data that has previously been analysed using individual predictors and outcomes. As well as examining the efficacy of the combined effects approach, the analyses also made a comparison with a specific single measure of nursing stress. Finally, an example of the addition of new variables to the model is described.

 Research on the occupational health of nurses has focused on a number of specific topics (see Smith 2019 for a detailed review of these areas of research). Initial research in the 1970's examined the effects of the working environment and investigated factors such as noise. More recently, psychosocial factors such as job demands and control (Karasek, 1979), or effort-reward imbalance (Siegrist, 1996) have been considered. The research has also included individual differences such as coping styles and personality (Cox and Ferguson, 1991). Mark and Smith (2008) developed the Demands-Resources-Individual Effects (DRIVE) model in an attempt to integrate previous research and provide a theoretical basis for changes in practice and policy. Later research examined associations between job characteristics, coping styles and the wellbeing of nurses (Mark and Smith, 2012). The results showed that negative job characteristics were associated with more mental health problems. Positive factors, such as rewards, social support and control, were associated with lower anxiety and depression scores. The addition of coping behaviours explained more variance in mental health outcomes. The effects of the predictors were independent, and there was little of evidence of interactions between them. The key issues related to the development of the combined effects approach are summarised in text box 1.

1. KEY POINTS: The development of the combined effects approach.
• Research on occupational health initially considered individual risk factors such as noise and working hours.
• This is not representative of real-life, where the person is exposed to a combination of stressors.
• The study of psychosocial factors (e.g. Job demands, Control and Social Support) initiated the development of the combined effects approach.
• This has been further developed by the addition of individual characteristics such as coping styles and personality.

Positive well-being has also been investigated (Diener 1984, 2000) using outcomes such as job satisfaction, happiness and positive mood states. This has led to research addressing the question of what is a good job (Wadsworth et al.. 2009), and the development of research on well-being at work (Smith et al. 2009). Recent research (Williams, Pendlebury and Smith 2017; Williams, Thomas and Smith 2017), has provided a conceptual framework for investigating well-being. This 'well-being process' examines occupational and personal factors that influence both positive (e.g. happiness, job satisfaction, and positive affect) and negative outcomes (e.g. stress, anxiety and depression). The positive predictive factors include job resources (e.g.

control), social support and psychological capital (self-esteem, optimism and self-efficacy). The negative predictive factors include job demands and negative coping (e.g. self-blame, wishful thinking and avoidance). This approach has been used with different occupations such as university staff (Williams, Thomas and Smith 2017) and nurses (Williams, Pendlebury and Smith 2017), and in several countries such as Jamaica (Nelson and Smith 2016), Nigeria (Omosehin and Smith 2018) and China (Zhang et al., in press), and the predictions of the Wellbeing Process model have been confirmed in all of these studies.

There has been less research on positive outcomes (happiness, life satisfaction, and positive mood states) in nurses. Research has shown that control and support can also prevent burnout (Laschinger and Fida 2014). It is also necessary to improve the positive features of nursing rather than only aiming reduce negative aspects (Brennan 2017; Utriainen et al. 2015). Williams, Pendlebury and Smith (2017) used the well-being process model as a framework for identifying predictors of positive and negative aspects of the well-being of nurses. Results showed that positive well-being (happiness, life satisfaction and other positive mood states) was predicted by positive personality (high self-esteem, self-efficacy and optimism) and positive coping (problem-solving and seeking social support). Negative outcomes (stress, anxiety and depression) were predicted by high job demands and negative coping (wishful thinking, avoidance and self-blame). The key issues related to the development of the wellbeing process approach are summarised in text box 2.

2. KEY POINTS: Development of the wellbeing process approach.
• Positive wellbeing outcomes include happiness, life or job satisfaction and other positive mood states. Negative outcomes include life or job stress, fatigue, anxiety and depression.
• The "Wellbeing Process Model" includes positive (e.g. control and support) and negative predictors (e.g. job demands), individual characteristics (e.g. coping, self-esteem, self-efficacy and optimism) and positive and negative outcomes.
• Positive outcomes are predicted by positive job/personal characteristics, whereas negative outcomes are predicted by negative job/personal characteristics.
• The predictions of the model have been confirmed using samples from different jobs and in different countries.

Research on topics such as stress and fatigue has shown that combining risk factors leads to the best predictor of these negative outcomes (Smith, McNamara and Wellens 2004; Smith, Allen and Wadsworth 2006). This approach can be applied to well-being. Zhang et al. (in press) used this method and demonstrated that the combined predictors score was a highly significant predictor of well-being outcomes.

One of the advantages of the well-being process approach is that new variables can be included in the model. Zhang et al., (in press) considered negative affective rumination (worrying about the job outside of work) and this was found to reduce well-being even when the combined predictors score was in the model. Other types of variable that could be added to the WPQ are recent negative experiences. Kanner et al. (1981) developed the daily hassles scale. Hassles were found to be a more powerful predictor of symptoms than life events, and it is of interest to determine whether these recent events can account for variance in well-being that is not due to the combined predictors described above. Another important factor is the extent to which

the person believes they are flourishing. This refers to having a purposeful and meaningful life (Dunn and Dougherty 2008). These variables were included in the present study to determine whether they provided additional predictive power.

The well-being process model largely measures organisational factors rather than the operational features of the job. Research from other occupations such as the police (Nelson 2017) shows that it is organisational factors (e.g. inadequate support from fellow officers, lack of participation in policy decisions, insufficient personnel to handle assignments) or personal characteristics rather than operational aspects of the job (e.g. threat of being injured/killed on the job, seeing a fellow officer being injured/killed, and verbal insults) that influence well-being. Previous research (reviewed by Williams and Smith 2014) suggests that this might also be the case in nursing which is a vocation where operational features are accepted as being part of the job, and it is the poor organisation of the work that often creates high stress levels. There are measures of operational stress in nursing, and the Expanded Nurses Stress Scale (French et al. 2000) was used in the analyses presented in the next section. This scale covers issues such as death and dying, inadequate preparation, conflict with physicians, problems with peers, workload, problems with supervisors, uncertainty concerning treatment, discrimination, and patients and their families. It is of interest to determine whether this scale predicts well-being and whether any associations can be accounted for by the combined predictors score of the WPQ. This was examined in the next section. The key points related to the combined effects method of analysing wellbeing are summarised in text box 3.

3.   KEY POINTS: The combined effects method of analysing wellbeing
• The Wellbeing Process Model contains many variables which is an advantage over approaches based on single predictors or outcomes.
• It is easy to add further variables (both predictors and outcomes) to the model. The addition of daily hassles and the extent to which a person is flourishing are examined here.
• The model has largely focused on organisational rather than operational factors. There is a need to compare the predictive power of these different aspects of work and this was done here by comparing the Wellbeing Process Questionnaire (WPQ) with the Expanded Nurses Stress Scale.

A secondary analysis of the wellbeing of nurses using the combined effects approach
Aim
The first aim of the study was to confirm that the combined predictors score from the WPQ was a strong predictor of well-being. The second aim of the present research was to compare the predictive power of the organisational and personal characteristics from the Well-being Process Questionnaire (WPQ), with the Expanded Nurses Stress Scale (ENSS). The ENSS covers a range of operational issues such as death and dying, conflict with physicians, inadequate preparation, problems with peers, problems with supervisors, workload, uncertainty concerning treatment, patients and their families, and discrimination. A final aim was to determine whether recent hassles and the overall perception of purpose and meaning in life may have an effect on well-being which is distinct from the influence of established predictors.

METHOD

A secondary statistical analysis of one of our previous studies (Williams, Pendlebury and Smith,2017) is presented here.

The next sections summarises the methodological features of that study.

Ethical approval and consent

The research was carried out with the informed consent of the volunteers following approval by the Ethics committee, School of Psychology, Cardiff University. Participants were recruited through the Royal College of Nursing. An online survey method was used. Volunteers could skip questions that they were not comfortable answering, and all data were anonymous. Informed consent involved ticking a consent box within the questionnaire and participants who did not agree could not continue beyond the consent page. Following the consent page, participants were presented with an instructions sheet, the questionnaire, and a debrief sheet at the end of the survey.

Participants

One hundred and seventy-seven nursing staff participated in the study. This number of participants was appropriate for identifying large effects found in previous research and to give a meaningful cases-to-independent variable ratio for the regression analysis (Tabachnick and Fidell 2007). Participants from many different areas of nursing took part in the survey, including educators, practitioners, and managers. One hundred and sixty were female, and the mean age was 40 years (age range 19-69 years).

Materials

The well-being process questionnaire (WPQ) was used. The full questionnaire is shown in Williams, Pendlebury and Smith (2017). The predictor variables were control, support and reward at work; job demands, effort and over-commitment; and coping style. Questions on consultation on change, role understanding, bullying and supervisor relationship were from the HSE Management Standards. Optimism, self-esteem, and self-efficacy (positive personality/psychological capital) were also measured. Job stress, life stress, negative affect, depression, and anxiety formed the negative outcome score. Positive affect, happiness, job satisfaction and life satisfaction were combined to give the positive outcome score.

Single-item measures of hassles and flourishing (Williams, 2015) were also used.
The Expanded Nurses Stress Scale (ENSS) was also used. A total score from this scale was used in the analyses.

Analysis Strategy

The IBM SPSS 25 package was used for analyses. Data were assessed for outliers, missing values and normality following the recommendations of Tabachnick and Fidell (2007). In the original paper individual predictors (psychological capital, negative job characteristics, job resources, and positive and negative coping) were used, as were separate positive and negative outcome measures. In the new analyses presented here, the negative well-being outcomes were summed as were the positive well-being outcomes. An overall well-being score was calculated by subtracting the positive score from the negative score (high scores = greater negative well-being; e.g. more stress, lower happiness). The WPQ risk factors were combined into a single

score by summing the negative well-being predictors (e.g. job demands, negative coping) and the reversed scored positive predictors (e.g. positive personality, social support). A high score on this measure represented a strong predictor of negative well-being. The ENSS total score (high scores = greater stress) and the scores for hassles (high scores = more hassles) and flourishing (high scores = greater purpose to life) were also calculated. It was predicted that the combined predictor score would have the highest correlation with the combined outcome score, and that the new predictors would also be significantly correlated with the outcome. It was also hypothesised that the predictor variables would be correlated with each other. In order to determine whether variables had independent effects, a regression with the combined WPQ predictors score, ENSS score, hassles and flourishing scores was carried out with the well-being outcome score as the dependent variable. The key issues related to the secondary analysis using the combined effects approach to wellbeing is shown in text box 4.

4. **KEY POINTS: A secondary analysis using the combined effects approach to wellbeing.**
• The present article describes a secondary analysis of a study of the wellbeing of nurses reported by Williams, Pendlebury and Smith (2017).
• The secondary analysis used a new method of scoring and analysis (creating combined predictor and outcome scores).
• Additional variables (daily hassles and flourishing) were investigated.
• A comparison was made between the predictive power of the WPQ and ENSS.

RESULTS

Correlations between variables

The correlations between the variables are shown in Table 1. All of the predictors were significantly associated (all p's < 0.001) with the well-being outcome score. In addition, the predictors were significantly correlated with each other, suggesting that there may be shared variance which requires a multi-variate analysis where all variables are included in the regression model.

TABLE 1. Correlations (Pearson's r) between the predictor variables and negative well-being outcome

	Negative well-being	Combined WPQ	ENSS	Hassles
Negative well-being	1			
Combined WPQ	0.72	1		
ENSS	0.33	0.42	1	
Hassles	0.58	0.52	0.23	1
Flourishing	-0.58	-0.55	-0.25	-0.44

Linear regression

The next analysis included all the predictor variables in a linear regression with the overall well-being score as the outcome. The results of this analysis are shown in Table 2. The effects of the combined WPQ predictors, hassles and flourishing remained significant, but ENSS no longer had a significant effect. This shows that hassles and flourishing have independent effects

from the current combined effects predictor, and that future research should add these variables to create a new combined effects variable which will have more predictive power. In contrast, effects attributed to the ENSS scale reflect the shared variance with the other predictors. The key results from the secondary analysis are summarised in text box 5.

TABLE 2. Regression with the combined WPQ, ENNS, hassles and flourishing scores as the predictor variables and negative well-being as the outcome

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	11.988	5.258		2.280	.024
ENSS	.011	.029	.020	.381	.704
COMBINED WPQ	1.545	.215	.470	7.179	.000
HASSLES	1.133	.274	.239	4.131	.000
FLOURISHING	-4.580	1.304	-.207	-3.512	.001

5. KEYPOINTS: Results from a secondary analysis using the combined effects approach to wellbeing.
• Initial correlational analyses suggested that all the predictor variables (combined WPQ score; ENSS score; hassles; and flourishing) were correlated with the wellbeing outcome.
• When all of the predictor variables were included in a single regression analysis, the effect of the ENSS score was no longer significant.
• Daily hassles and the extent to which the person was flourishing had significant associations with wellbeing.

DISCUSSION

The present result confirms that the established predictors from the well-being process model, and the well-being outcomes, can be combined into single measures. It is quite plausible that the questions measuring these concepts can be reduced in number with specific examples being given for each. This has implications for the auditing of well-being and work, and for interventions aimed at promoting and managing the well-being of nurses. First of all, it is now possible to use a 10-item questionnaire that measures both the predictors and well-being outcomes (Smith, 2021). This will make the auditing of well-being a very simple process, and because each of the predictor questions will have the same range of scores, the combined effects measure can be derived by just adding up the predictors. Similarly, positive and negative outcomes can be measured by single items. A student version of the questionnaire has also been developed, and while the samples studied have largely been psychology students, research suggests that the approach is also applicable to students doing nursing courses (Galvin, 2016). These items have been shown to be correlated with longer measuring instruments and used in research with different samples (see Smith, in press). The present study also demonstrates that other concepts should be included in the measurement of well-being. This has been shown in previous research where fatigue (Howells and Smith, 2019) and burnout (Omosehin and Smith 2018) have been added to the outcomes. These additional variables may cover different time periods, as in the measurement of hassles in the present study. Also, they may address more global, abstract components of well-being, such as the purpose and meaning of life, which was

covered here by the item on flourishing which showed a strong negative association with the negative well-being outcome.
Insert Table 3 about here

The results of the study also provide information on how to improve well-being through training or re-design of the job? The WPQ includes measures of personal characteristics which are likely to be developed by established methods such as mindfulness. Similarly, resilience should be based on positive coping styles rather than negative ones such as wishful thinking, self-blame and avoidance. Job re-design should focus on negative organisational practices and culture rather than changing specific operational procedures.

LIMITATIONS
The major limitation of the present study is that the data were cross-sectional. Future research should use a longitudinal design, preferably with an intervention, in order to obtain a clearer picture of causal relationships. The analyses were also based on secondary analyses and it is desirable to conduct further research with nursing samples to confirm the present results.

CONCLUSION
Well-being at work is a major issue that requires a holistic approach. Both the predictors of well-being and the outcome measures should include positive and negative variables. The predictors should cover both job characteristics and individual traits. The combination of these variables is a highly significant predictor of well-being based on both positive and negative outcomes. The measures used in the well-being process model can always be extended and refined. It is important to show that any additional variables are independent of the established combined effects. This was done here, and hassles and the extent to which the person was flourishing should now be added to the model. A short measuring instrument, based on the well-being process, can now be used to audit the well-being of nurses.

KEY POINTS
1. The best predictor of well-being at work is the combined effects of well-established factors (e.g. job demands; social support; positive personality, and negative coping).
2. Well-being outcomes are also predicted by factors such as recent hassles and the extent to which the person is flourishing.
3. Specific operational measures, such as the Expanded Nurses Stress Scale, do not have a significant effect on wellbeing when organisational and individual differences are included in analyses.

IMPLICATIONS FOR PRACTICE
1. Well-being at work has become a major issue in nursing.
2. There are now methods of auditing levels of well-being using short surveys.
3. This methodology can now be used to evaluate changes in well-being over time, and the efficacy of interventions aimed at improving it.

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