

Work-related well-being

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Health Psychology Open
January-June 2016: 1–11
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DOI: 10.1177/2055102916628380
hpo.sagepub.com



Abstract

This study aimed to investigate the different dimensions of well-being (namely, work engagement, job satisfaction, and psychological stress) and possible predictors such as personality and perceived organizational support. A cross-sectional survey design was used, with a sample of 490 ambulance personnel in the United Kingdom. Significant correlations were found between the dimensions of job satisfaction, engagement, and stress. The results also supported a hierarchical model with job satisfaction, stress, and engagement loading onto one higher order factor of work well-being. Emotional stability and perceived organizational support were identified as significant predictors of well-being. The findings suggest the importance of measuring the work-related well-being of ambulance personnel holistically and present perceived organizational support as a possible area for interventions to improve well-being.

Keywords

adults, anxiety, beliefs, mental illness, worry

Employee well-being has received a great amount of research interest in recent years (Rothmann, 2002; Van der Colff and Rothmann, 2009) as an important predictor of employee and organizational productivity (Wright and Cropanzano, 2004; Wright et al., 2007), absenteeism, turnover, and performance deficits (Cropanzano et al., 2001). In particular, there has been growing interest in the well-being of personnel in demanding occupations such as healthcare and emergency vocations where employees face higher risks of poor mental and physical health (Bennett et al., 2004; Ramirez et al., 1996) as a result of chronic and acute stressors (Payne and Firth-Cozens, 1987; Rees and Cooper, 1992).

Ambulance staff, in particular, have been identified as facing an especially challenging set of demands and chronic job stressors (Moran and Britton, 1994; Young and Cooper, 1997). Studies comparing well-being across occupations have highlighted ambulance services as one of six vocations with greater work-related stress, and physical and psychological well-being (Johnson et al., 2005). Another study by Young and Cooper (1997) also found that ambulance workers report lower job satisfaction, lower physical and psychological health, and greater burnout. Within the United Kingdom specifically, ambulance personnel have higher rates of premature retirement compared to other healthcare staff, due to poor mental and physical health (Rodgers, 1998).

Despite being identified as a high-risk occupation, there has been relatively little research on the well-being of ambulance service workers (Bennett et al., 2004). The first, and latest, systematic review of the literature in this area was conducted by Sterud et al. (2006), regarding the physical and psychological problems among ambulance service staff. Sterud and colleagues found that a majority of the studies were related to psychopathology in ambulance personnel. In particular, most studies examined the prevalence of post-traumatic stress disorder (PTSD; Bisson and Deahl, 1994; Moran and Britton, 1994; Van der Ploeg and Kleber, 2003) and the relevant coping strategies and predictors (Bennett et al., 2004; Brough, 2005; Marmar et al., 1999). After measures of mental health, studies then focused largely on physical health of ambulance workers (Öhman et al., 2002; Rodgers, 1998). The literature hence largely concentrates on evaluating ambulance personnel well-being in terms of negative outcomes such as job stress or illness.

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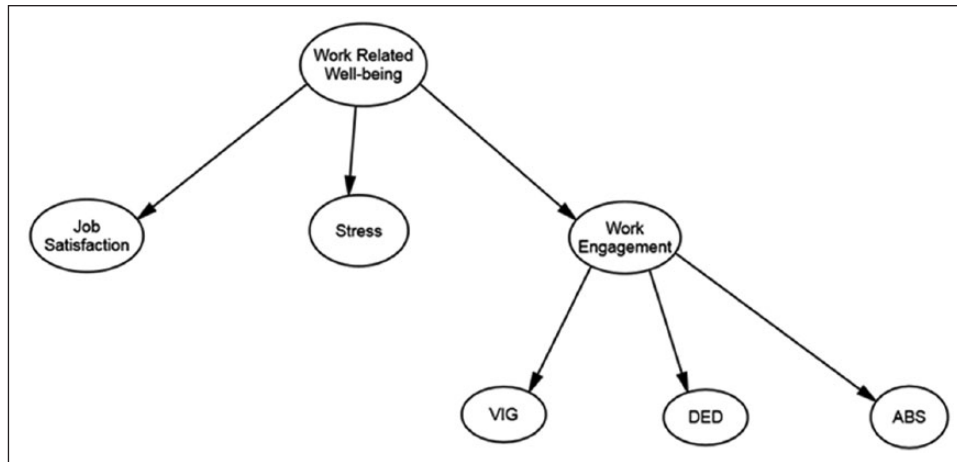


Figure 1. Hypothesized model of work-related well-being.

This study thus aimed to investigate the predictors, dimensions, and factor structure of well-being in emergency ambulance personnel. The aspects of well-being examined in this study include work engagement, job satisfaction, and job stress, while the predictors include perceived organizational support (POS) and personality.

Dimensionality of well-being

Among the various components of psychological well-being, affective well-being has been demonstrated to be one of the most important indicators (Warr, 1994). Affective well-being is a multi-dimensional construct that reflects the frequency which individuals experience various different positive and negative affects (Diener and Larsen, 1993). Affective well-being can be measured specific to a domain and is frequently applied to measure work-related well-being (Warr, 1990). Warr's proposed dimensions of affective, work-related well-being include enthusiasm–depression (measured by engagement and burnout), anxiety–comfort (measured by occupational stress), and pleasure–displeasure (measured by job satisfaction).

A confirmatory factor analysis conducted by Daniels (2000) also proposed a factor solution with multiple related but distinct first-order dimensions (anxiety–comfort, depression–pleasure, bored–enthusiastic, tiredness–vigor, and angry–placid) and two second-order factors that correspond to negative and positive affects (Watson and Tellegen, 1985) as the best fit for measuring work-related affective well-being. However, as Daniels' study used a general sample population, there is a possibility that the structure of well-being in ambulance personnel may be similarly multi-dimensionality and hierarchical, but not completely identical.

While there are no prior studies modeling well-being in ambulance personnel, a study by Rothmann (2002) has

suggested a model of well-being for the police force, an equally challenging vocation with its own inherent stressors (Johnson et al., 2005). Rothmann proposed a model with four distinct but related factors (satisfaction, occupational stress, burnout, and engagement) loading onto a single higher order factor of well-being. Given the similar natures of these professions, it is possible that Rothmann's model of well-being in the police force may be a better fit than Daniels' (2000) model:

Hypothesis 1. Work-related well-being in ambulance personnel is best modeled by a hierarchical model with three related but distinct first-order factors loading onto a single second-order factor of well-being (shown in Figure 1).

Work engagement

The concept of work engagement has emerged from research showing that certain employees find pleasure in work despite strenuous job demands and stressors (Bakker et al., 2007). This led Schaufeli et al. (2002) to propose the theoretical construct of work engagement, a fulfilling and positive work mindset. Work engagement is not momentary, but is a persistent and continuous affective and cognitive state, comprising the three dimensions: absorption (i.e. being focused and engrossed in work), dedication (i.e. being pride and enjoying work), and vigor (i.e. being energetic and resilience).

Job satisfaction

Job satisfaction has been described (McShane, 2004) as an individual's evaluation of his or her job and work context, and as an overall feeling toward a job and its facets (Spector, 1997). As a construct, it has been operationalized both globally and multi-dimensionally, with the number of proposed

dimensions ranging from 5 to 20 depending on the measure (Fields, 2002). Common examples of job satisfaction dimensions include satisfaction with coworkers, promotion, and pay. The literature on job satisfaction suggests that it may be positively related to job performance (Carr et al., 2003; Judge et al., 2001) and organizational performance (Schneider et al., 2003). As job satisfaction reflects employee attitudes to their occupation, and has considerable criterion-related validity, the measure has a history of being used to operationalize employee well-being (Warr, 2002).

Occupational stress

Different models of occupational stress have been developed over the years such as the person–environment fit model (French et al., 1982) and the demand–control model (Fox et al., 1993). The person–environment fit model suggests that physical and psychological stress results from an inappropriate person–environment fit, while the demand–control model explores the relationship between situational demands and the freedom of the individual in meeting the job requirements. While both models have contributed and influenced the direction of job stress research, they focus more on environment factors and individual capability, rather than specific stressors, and the contribution of individual differences in personality, coping strategies, and resources (Spielberger and Vagg, 1994). Research on occupational stress in emergency service personnel has found that ambulance workers report facing more acute and chronic work stress compared to controls (Young and Cooper, 1997).

Perceived organizational support

Organizational support theory proposes that employees form general beliefs regarding how much the organization values their contribution, and is it concerned about their well-being (Eisenberger et al., 1986). POS has been shown to positively correlate to employee concern for organizational welfare and commitment to achieving organizational goals. POS was also an indirect contributor to affective commitment and performance (Eisenberger et al., 2001).

While the relationship between well-being and POS has not been studied specifically in ambulance personnel, research by Cicognani et al. (2009) has found that a sense of community is significantly correlated to compassion satisfaction and well-being in ambulance personnel. A study by Beaton et al. (1997) also found that paramedics with greater perceived social and network support from coworkers had higher levels of job satisfaction and morale and lower appraised occupational stress:

Hypothesis 2. POS will be a significant, positive predictor of work well-being in ambulance personnel.

Personality

Various studies have shown personality to be a consistent and significant predictor of well-being (Diener et al., 1999). Research in this area generally suggests emotional stability and extraversion as significant predictors of satisfaction and well-being (Schimmack et al., 2002). A meta-analysis by Steel et al. (2008) found low emotional stability to be the strongest predictor of well-being, particularly of negative measures, followed by extraversion which strongly predicted positive measures in particular. However, studies disagree on how much variance in well-being personality factors account for. DeNeve and Cooper's (1998) meta-analysis, for example, found emotional stability and extraversion to be statistically significant predictors, but reports less than half the amount of variance accounted for.

With regards to the ambulance personnel specifically, few studies have examined the relationship between personality and well-being. One such study by Young and Cooper (1997) found that "type A" personality, characterized by hostility, aggression, and a need for accomplishment (Friedman and Rosenman, 1974), was a predictor of mental health symptoms after 6 months. Another study by Brough (2005) also examined emotional stability and found that low emotional stability was a strong, negative indicator of work well-being in a sample of ambulance workers from New Zealand. This is supported by the inclusion of emotional stability in various evaluations of psychological well-being (Goddard et al., 2004):

Hypothesis 3. Emotional stability will be a significant positive predictor of well-being in ambulance service staff.

Hypothesis 4. Extraversion will be a significant positive predictor of well-being in ambulance service staff.

In the present experiment, a sample of ambulance personnel in the United Kingdom was used to investigate the above-mentioned hypotheses on emergency service staff well-being. Structural equation modeling (SEM) was then used to explore the factor structure of well-being.

Method

Participants

A sample of 490 ambulance service staff (253 males, 237 females) within the United Kingdom participated in the study. Participants ranged in age from 20 to 67 years, with a mean age of 41.49 (standard deviation (SD)=10.56) years. The majority of the sample was White British (94.3%). A list with the detailed demographics is available upon request.

Measures

Perceived organizational support. Perceptions of organizational support were measured using a short form of Eisenberger and colleague's survey of perceived organizational support (SPOS; Eisenberger et al., 1986). The 5 highest loading items from the original 36 were chosen for the present experiment. The use of shorter forms of the scale that include both facets of POS (caring for employee well-being and valuing employee contribution) has been validated and proved reliable due to the original scale being unidimensional in nature and having a high internal reliability (Rhoades and Eisenberger, 2002). The items use a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*. A meta-analysis of studies measuring POS found that the scale had a high average internal reliability of $\alpha = .90$ (Rhoades and Eisenberger, 2002).

Stress. Psychological symptoms of stress were measured using a 3-item scale developed by Patchen (perceived supervisor support (PSS); 1970). Participants responded using a 5-point Likert scale ranging from 1 (*less than once a month*) to 5 (*two or three times a week*). Patchen's 3-item scale has been reported to have an internal consistency of .89 (Thomas and Tymon, 1995)

Work engagement. The Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002) was used as a measure of work engagement. The three subscales of the UWES—vigor, dedication, and absorption—were used in the study. All items were scored on a 7-point Likert scale from *strongly disagree* to *strongly agree*. A previous study has found Cronbach's α for the three subscales to fall range from .68 to .91 (Storm and Rothmann, 2003).

Job satisfaction. Job satisfaction was measured using a facet approach, with nine single-item scales each measuring satisfaction toward a specific job aspect: physical environment, independence, work hours, pay, promotion opportunities, job security, attention from management, supervisors, and coworkers. Participants responded using a 7-point Likert scale that ranged from *very dissatisfied* to *very satisfied*.

Personality. The single-item measure of personality (SIMP; Woods and Hampson, 2005), a short measure of the five-factor model (McCrae and Costa, 1999) was used to measure personality. The inventory uses single-item scales, each corresponding to one personality factor. The SIMP was reported by its authors to have acceptable levels of divergent and convergent validity, reliability, and self-other accuracy. The measure starts with the stem "Generally, I come across as": followed by five bipolar response scales, each with a description of the factor extremes on either side of the scale (e.g. "Someone who is sensitive and excitable, and can be tense" versus "Someone who is relaxed,

unemotional, rarely gets irritated, and seldom feels blue"). The measure has been shown to have a convergence ranging from $r = .55$ to $.66$ ($M = .61$), with longer five-factor personality scales.

Design and data collection

The present experiment used a cross-sectional, quantitative survey design. Data collection for this study was carried out by Zeal Solutions using an online survey platform as part of a regular assessment of employee well-being within the UK ambulance service.

Model fit indices

Due to a lack of consensus in the field, multiple goodness-of-fit indices were used. First, a χ^2 goodness-of-fit statistic evaluating the degrees of freedom and statistical significance was used. As the χ^2 statistic is sensitive to large sample sizes, other goodness-of-fit indices were used such as the root mean square error of approximation (RMSEA; indicates total amount of error in fit proportional to complexity), the Comparative Fit Index (CFI; compares global fit of the independent and hypothesized model, with sample size accounted for), the Tucker–Lewis Index (TLI; Tucker and Lewis, 1973; measures relative covariation accounted for), and the Normed-Fit Index (NFI; measures global model fit by comparing hypothesized model with a completely independent model). The recommended values for model fit on the RMSEA are less than .06 for a good fit (Hu and Bentler, 1999), between .08 and .06 for a moderate fit, and greater than .08 for a mediocre fit (MacCallum et al., 1996). Values greater than .90 on the CFI, NFI, and TLI indicate an acceptable fit, while values larger than .95 suggest a very good fit (Bentler, 1990).

Results

Descriptive statistics and correlational analysis

Means, SDs, and α correlations of each measure are displayed in Table 1. The Cronbach's α coefficients of the multi-item scales were all greater than .70, demonstrating measure reliability. Pearson correlations between the measured variables were calculated to examine the relationship between the different individual factors and dimensions of well-being.

The three engagement factors correlated significantly to PSS, job satisfaction, POS, extraversion, agreeableness, and emotional stability. There was also a significant correlation between PSS and job satisfaction. The personality factors of extraversion and emotional stability correlated significantly to PSS, while agreeableness and emotional stability were correlated to both POS and job satisfaction. Finally, POS also correlated with PSS and job satisfaction.

Table 1. Means, standard deviations, Cronbach's α coefficients, and Pearson correlations between measures.

Variables	Mean (SD)	α	1	2	3	4	5	6	7	8	9	10
SIMP												
1. Extraversion (R)	5.15 (1.81)	–	–									
2. Agreeableness	5.93 (1.80)	–	-.127**	–								
3. Emotional stability	5.25 (1.78)	–	-.004	.060	–							
4. Conscientiousness (R)	6.04 (1.71)	–	-.015	-.153**	-.061	–						
5. Openness	5.15 (1.66)	–	.063	.078	-.029	-.099*	–					
6. SPOS	3.35 (1.47)	.95	.025	.203**	.131**	-.042	.000	–				
7. PSS	3.02 (1.21)	.78	-.104*	-.036	-.320**	.016	.014	-.461**	–			
UWES												
8. Absorption	4.42 (1.35)	.80	.135**	.133**	.114*	.011	.075	.532**	-.384**	–		
9. Dedication	5.22 (1.29)	.85	.131**	.157**	.194**	.021	.047	.481**	-.438**	.687**	–	
10. Vigor	3.70 (1.41)	.86	.124**	.104*	.262**	.010	.018	.568**	-.684**	.652**	.677**	–
11. Job satisfaction	4.19 (1.00)	.79	.011	.186**	.137**	-.063	-.005	.734**	-.495**	.545**	.471**	.562**

SIMP: single-item measure of personality; SPOS: survey of perceived organizational support; PSS: perceived supervisor support; UWES: Utrecht Work Engagement Scale; SD: standard deviation.

Items marked (R) were reverse scored. All values for job satisfaction were calculated as an average across the different facet.

* $p < .05$, ** $p < .001$.

Factor structure of work engagement measured by the UWES

A confirmatory factor analysis was conducted to validate the theoretical three-dimensional model of engagement in the present sample and the appropriateness of using composite scores for each factor. The overall fit of the resulting three-dimensional model is shown in Table 2. As seen from Table 2, while a three-factor model was a better fit than an alternative one-factor model, it was not an ideal fit before covariance was allowed. However, once errors were allowed to covary, there was a significant improvement in fit, with the χ^2 decreased by approximately three times, the RMSEA below the 1 cut-off, and CFI, TLI, and NFI statistics well above the strict .95 cut-off.

Factor model of well-being

In order to test the fit of the hypothesized model (as reported in the introduction), SEM was used to compare the goodness-of-fit of the model against two alternative models displayed in Figure 2. The first alternative model, (labeled "Model 1"; based on Daniels, 2000) involved the various dimensions loading onto two higher order factors, with psychological stress and job satisfaction loading onto the negative affect factor, and engagement on the positive affect factor. The second model involved a one-factor model (labeled "Model 2") with all the components of well-being loading onto a single first-order factor. The measured variables and error terms were not depicted in the figures for parsimony.

The findings gave us a clear idea regarding which model has the best fit (Table 3). As we can see in Table 3, the hypothesized model had a slighter better fit than the two

alternatives (.1U of increase in CFI and .2U in NFI). Furthermore, when covariance was allowed, the hypothesized model still had a slighter better fit than the two alternatives (RMSEA decreased by .1U and CFI, TLI, and NFI increased by .1U). The hypothesized model and the path loadings can be seen in Figure 3.

Causal model of well-being

Finally, SEM was used to evaluate the relationship between personality and POS as predictors of work-related well-being. The full hypothesized structural equation model tested is shown in Figure 4. For the sake of parsimony, the observed measures as well as the error terms were not displayed in the figure. The overall model was found to be a relatively good fit with the data ($\chi^2=1068.131$, $df=333$, $p < .001$, RMSEA=.067, CFI=.911, TLI=.899, and NFI=.876), with a RMSEA value smaller than .08 indicating an acceptable fit, and CFI, TLI, and NFI values approaching or greater than the recommended .90.

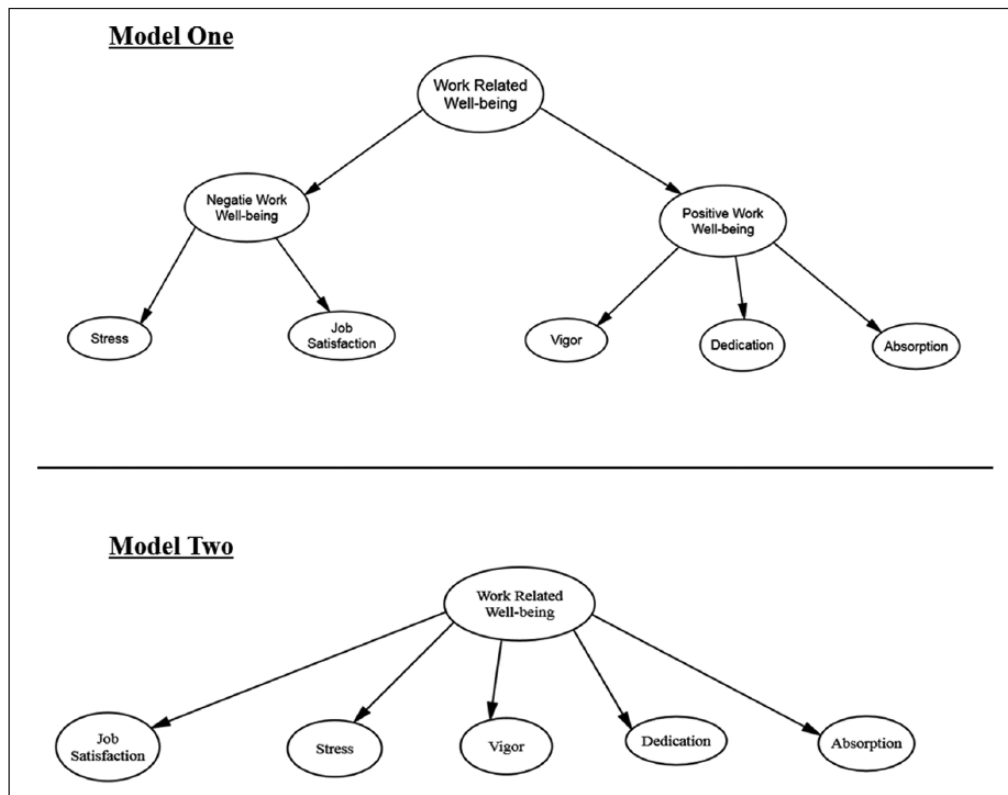
Table 4 below displays the factor loadings and parameter estimates in the model. The factor loadings from the SEM analysis indicated that POS and emotional stability were significant direct predictors of work-related well-being. Emotional stability was also found to be a predictor of POS and to have a mediated effect to well-being through POS.

However, the results of the SEM analysis also indicated that the structural parameters representing the paths from extraversion to work-related well-being and POS were not significant ($\beta = .025$, $p = .065$; $\beta = .064$, $p = .582$). As a result, a new model was specified, with extraversion removed from the model to make it more parsimonious. The result of the newest model after covariance was allowed is depicted

Table 2. Confirmatory factor analysis of the theoretical framework of work engagement.

Model	χ^2	df	χ^2/df	RMSEA	CFI	TLI	NFI
One-factor engagement	617.452	27	22.869	.211	.801	.734	.794
Work engagement	308.570	24	12.854	.156	.904	.856	.897
Work engagement allowing covariance	97.322	20	4.866	.089	.974	.953	.968

RMSEA: root mean square error of approximation; CFI: Comparative Fit Index; TLI: Tucker–Lewis Index; NFI: Normed-Fit Index; df: degree of freedom.

**Figure 2.** Alternative models of work-related well-being.

in Figure 5. The latest model had a slightly better fit to the data ($\chi^2=1013.810$, $p<.001$, RMSEA=.068, CFI=.914, TLI=.902, and NFI=.882) and was indicated to be a better fit than the initial model by goodness-of-fit indicators such as the CFI, TLI, and NFI.

Discussion

The present experiment investigated the dimensions of work-related well-being (job satisfaction, engagement, and occupational stress) in UK ambulance staff as well as the individual factors that predict ambulance staff well-being. The findings supported a more holistic model of well-being in ambulance staff that includes various positive measures such as job satisfaction and engagement as well. The findings also indicated POS and emotional stability to be the significant predictors of well-being.

Measuring work-related well-being

Hypothesis 1 was supported by results which indicated that a hierarchical model with different dimensions of affective well-being loading onto a single higher order factor was a good fit for data representing ambulance personnel well-being. This supported Warr's (1990) three-dimensional model of affective work-related well-being and Rothmann's (2002) suggestion of a single higher order well-being factor for personnel working in stressful, emergency response situations.

This model was a better fit than Daniels' (2000) proposed model of multiple dimensions loading onto two higher order factors of positive and negative affects. A possible explanation is that Daniels' study utilized a wider variety of measures that more comprehensively captured the dimension space of affective well-being in the work

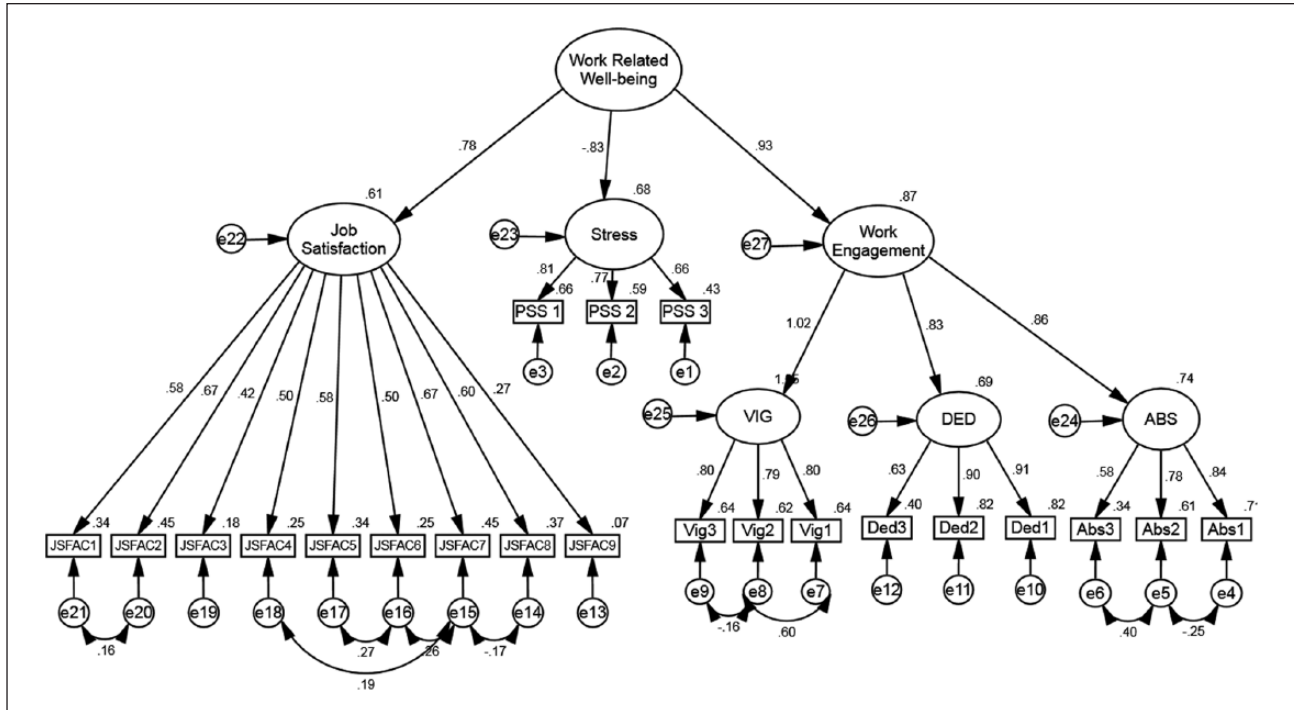


Figure 3. Hypothesized structural model of work-related well-being, with path coefficients and error covariances.

Table 3. Goodness-of-fit indices for models of work-related well-being.

Model	χ^2	df	χ^2/df	RMSEA	CFI	TLI	NFI
Hypothesized model	681.974	180	3.789	.076	.903	.886	.874
Model 1	688.555	180	3.825	.076	.902	.886	.872
Model 2	688.555	180	3.825	.076	.902	.886	.872
Hypothesized model (allow covariance)	571.567	174	3.292	.068	.923	.907	.894
Model 1 (allow covariance)	579.728	174	3.310	.069	.922	.906	.893
Model 2 (allow covariance)	579.225	175	3.310	.069	.922	.906	.893

RMSEA: root mean square error of approximation; CFI: Comparative Fit Index; TLI: Tucker–Lewis Index; NFI: Normed-Fit Index; df: degree of freedom.

domain. In particular, Daniels’ study included the dimension of angry–placid, which was not measured in the present experiment. As this dimension was found to significantly characterize the higher order factor of negative affect, the lack of measures for this dimension may account for why a two-factor structure was not a best fit for the present data. Overall, however, the present model is consistent with the literature in highlighting the multi-dimensional nature of well-being and suggesting the appropriateness of such an approach to well-being in ambulance personnel.

Individual difference predictors of well-being

In support of hypothesis 2, SEM showed that POS was a significant predictor of the higher order factor of well-being

in ambulance personnel. This result suggests that the level of organizational support experienced by ambulance personnel strongly and directly influences their level of affective well-being.

Although the relationship between POS and work-related well-being has not been directly studied, this finding matches the theoretical understanding of POS, well-being measures such as engagement and satisfaction. Employees reporting high POS feel that the organization is concerned for their well-being and appreciates the contributions that they provide (Eisenberger et al., 1986). It is thus understandable that employees with this belief are more likely to express greater satisfaction with their organization. Additionally, Van der Ploeg and Kleber’s (2003) study of ambulance personnel found that social support at work and organizational communication were the best

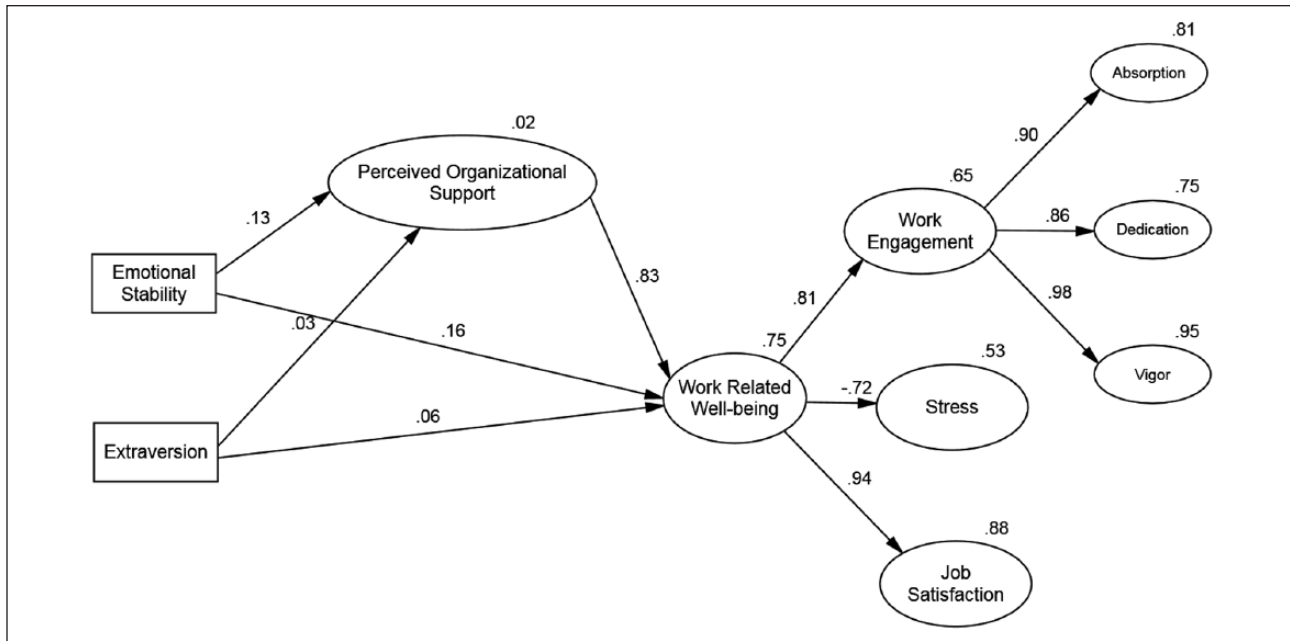


Figure 4. Hypothesized structural model of the relationship between personality, POS, and work-related well-being.

Table 4. Standardized and unstandardized estimates, standard errors, and significance of hypothesized causal model, and post-hoc causal model.

Parameter	Unstandardized estimate	Standardized estimate	Standard error
Hypothesized causal model			
Emotional stability → POS	.100	.134	.034*
Extraversion → POS	.019	.025	.034
Emotional stability → work-related well-being	.036	.157	.010**
Extraversion → work-related well-being	.014	.064	.008
POS → work-related well-being	.258	.829	.047**
Post-hoc hypothesized causal model			
Emotional stability → POS	.100	.134	.034*
Emotional stability → work-related well-being	.036	.153	.010**
POS → work-related well-being	.263	.834	.047**

POS: perceived organizational support.

* $p < .01$, ** $p < .001$.

predictors of physical and mental health. This highlighted the particular importance of the social work environment and the organization in contributing to the well-being of ambulance staff.

SEM results also supported hypothesis 3, indicating that emotional stability was a modest but significant predictor of well-being in emergency ambulance staff. Within the model, emotional stability was found to have both a direct and a mediated effect through POS on both factors of well-being. This supports existing findings where high levels of emotional stability predicted greater well-being in the general population (Steel et al., 2008).

The literature suggests that the relationship between emotional stability and well-being occurs because high

emotional stability results in a lower negativity bias (Watson et al., 1987). A decreased propensity toward negative cognitions and schemas may then influence well-being by increasing thoughts of satisfaction and engagement with work. Emotional stability has also been proposed as an affective disposition determining the experience of positive or negative affect, with emotionally stable individuals more positive and pleasant affective well-being (Diener and Lucas, 1999). It is possible that the mediated relationship between emotional stability and POS is largely similar to the direct relationship between emotional stability and well-being as well. The same disposition toward negative affect and cognitions is likely to influence how much organizational support an individual

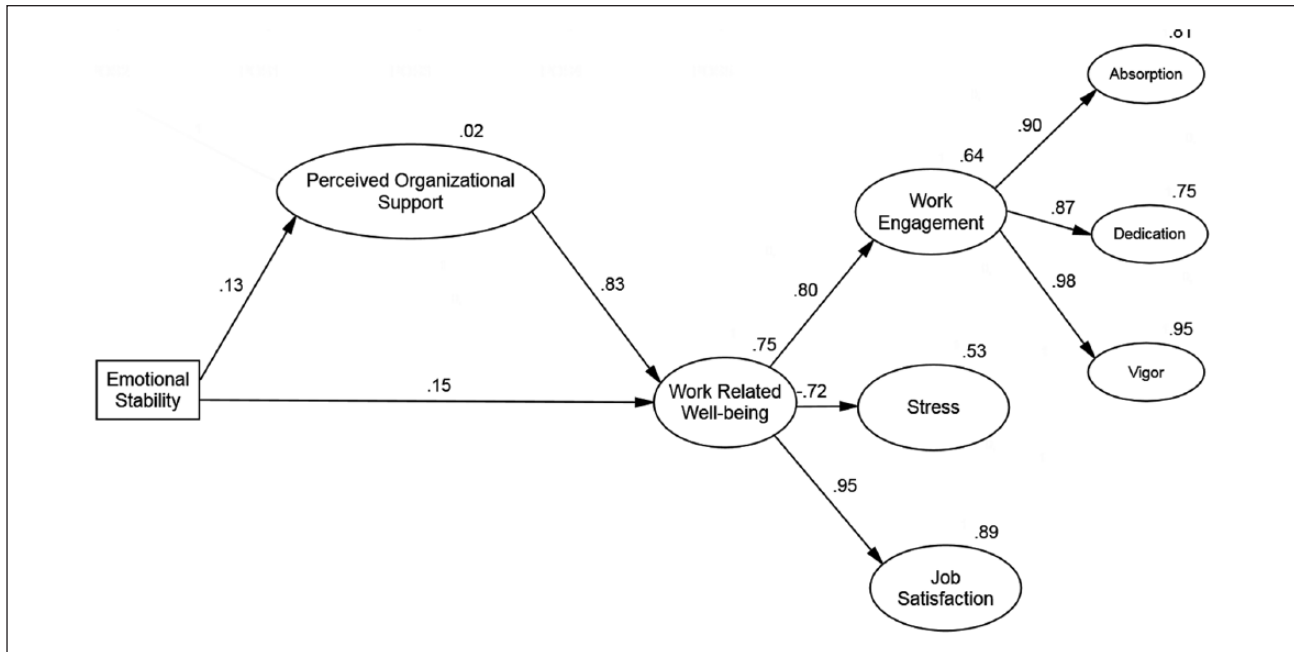


Figure 5. Post-hoc model of the relationship between personality, POS, and work-related well-being.

feels they receive, and the attributions they make toward the organization.

The results of the SEM analysis did not support hypothesis 4, as extraversion was not a significant predictor of well-being in ambulance staff, and thus they were removed from the overall regression model. This contradicted previous findings (DeNeve and Cooper, 1998; Steel et al., 2008) of extraversion as a significant predictor of well-being in the general population. This difference may be due to the use of SIMP. While this measure has an established validity and reliability, it may not adequately encompass the dimension space of trait extraversion and may also lack statistical power. It is also possible that extraversion may not be a relevant predictor of well-being in ambulance staff specifically. Given the unique nature of the vocation (Carriere and Bourque, 2009), it is possible that compared to the general population, a different set of traits may be essential in predicting ambulance personnel well-being.

Limitations and future research

One limitation of the present experiment was the necessary use of a cross-sectional design due to limited resources and time frame. While the use of advanced statistical models such as SEM allows causal relationships to be tested even with a cross-sectional design, carefully controlled longitudinal designs are ultimately preferred to establish causality.

Another limitation was the sample and item size. While the current sample size was sufficiently large for such analyses, it was smaller than previous studies with samples ranging from 600 to 5000 individuals (Daniels, 2000; Van

der Colff and Rothmann, 2009). The present sample may thus be insufficient to extract more complicated factor solutions (MacCallum et al., 1999). Additionally, the present experiment utilized abbreviated measures with a smaller number of items compared to the longer forms used by previous studies. While these abbreviated forms have considerable construct reliability and validity, the smaller number of items to extract may have resulted in less stable and coherent latent factors compared to longer measures (Costello and Osborne, 1994).

Finally, the variety of measures and lack of appropriate previous samples prevent comparison of the levels of positive well-being of ambulance personnel against other occupations. Future studies may thus consider using similar cross-occupational samples, such as in Brough (2005) and Johnson et al. (2005), to compare the levels of positive well-being in ambulance staff against other occupations. Further research into individual predictors of ambulance personnel well-being such as personality or demographic factors should also be encouraged due to the limited number of existing studies (Sterud et al., 2006).

Implications

The findings of this study have significant theoretical implications for how the well-being of ambulance service staff should be evaluated. The current literature has taken an approach targeted predominantly at treating negative symptoms of physical illness and PTSD (James and Wright, 1991; Sterud et al., 2006). However, these results suggest that a holistic approach that includes positive and affective

aspects is equally applicable and relevant to understanding the well-being of ambulance personnel as well. Future research should thus consider a broader approach to evaluating well-being, more similar to that taken in general fields of organizational psychology. Additionally, this study highlights a need for greater focus on individual difference predictors such as personality or demographics.

The results from this experiment also have significant practical implications for managing well-being in ambulance personnel. First, they suggest that ambulance services should ensure that they evaluate not just the negative aspects of staff well-being, but include positive measures such as engagement and job satisfaction as well. Additionally, they indicate that organizations should attend to important individual and organizational predictors of well-being. For example, the finding of POS as a predictor presents a feasible area for organizational interventions to improve the well-being of ambulance staff. Managers in this field should thus consider actions that may be taken to increase the levels of POS and demonstrate that the organization values the contribution and welfare of their ambulance service staff.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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