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The measurement of worker relations: the development of a three-component scale

ABSTRACT

Purpose

Healthy employee relations are important for individual well-being and are likely to contribute towards job satisfaction and other positive work outcomes. This paper discusses the importance of worker relations and proposes a new three-component model of worker relations which embraces the relationships that employees have with their co-workers, supervisor and the organisation.

Design/methodology/approach

A 20-item inventory was tested using data collected in a local authority (N=157) and led to the retention of nine items which were embodied in a scale for further evaluation. A second study using data using obtained in an Emergency Call Management Service (N=85) was used to further evaluate the factor structure of the scale and assess its predictive validity. A third study (N=70) provided further information on the measure.

Findings

The new nine item measure is a viable instrument with adequate reliability for assessing three levels of worker relations. In line with predictions, the three sub-scales (co-worker, supervisor and organisation) were positively correlated with job satisfaction and social relations.

Practical implications

The new scale provides a freely available and parsimonious alternative to existing measures of worker relations.

Originality/value

The paper considers the component aspects of worker relations before defining, theorising and developing a general purpose short instrument capable of quantitatively measuring worker relations.

Introduction

Worker relations lie at the heart of work psychology given the presumed links between healthy worker relations and positive work outcomes. A review of the literature, however, suggests that the term worker relations is interpreted in a number of ways resulting in a variety of different techniques and measures being employed. Tailored instruments such as leader-member exchange (LMX), team-member exchange (TMX) and the Worker Opinion Survey (Cross, 1973) are valuable to the organisations for which they are designed as well as within specific research settings. However, they are often not suitable as a general tool across different environments such that a simpler and more general measure of worker relations would be of value both to researchers and practitioners. This paper begins by reviewing the importance of worker relations and its impact on work outcomes. The paper then describes the operationalisation of a three component model of worker relations before presenting the results of initial testing. The contribution of the paper is to define, theorise and develop a general purpose short instrument capable of quantitatively measuring worker relations.

Worker relations

Some of the most critical relationships that an individual can have are with their work colleagues (Struthers, Dupuis and Eaton, 2005) and worker relations can be described as the interactions between individuals and their co-workers, their supervisors and their organisation. This paper intends to integrate these three disparate aspects of employee relations into a unified model applicable to both permanently employed staff and temporary workers.

Aspects of worker relations are usually studied individually. Cross (1973) was arguably the first to create a set of measures that could be used as a Workers' Opinion Survey. They measured a number of different aspects of work which in-turn related to job satisfaction including co-workers, the attitudes of employees towards their workmates; immediate superior, the superior-subordinate relationship and the firm as a whole (Cross, 1973, pp.193-194). Cross's measures benefit from being short and easily combined with other measures (Soutar and Weaver, 1982). Nevertheless, the original measure is over 40 years old and some of the item wording has become dated for instance, in the co-worker scale, one of the items is, 'The people I work with are stupid'. While this may have been an appropriate item at the time it no longer seems appropriate language to use. The original items were also measured using a three point Likert scale (yes, uncertain, no). Using a three point scale and

summing scale scores to produce a continuous interval scale is now generally discouraged although summation of five or seven point Likert scales is widely practiced in psychological measurement (Howell, 2013).

Although Cross (1973) measured three aspects in worker relations, two aspects are commonly measured in the literature on leader-member exchange (LMX) and team-member exchange (TMX). Leader-member exchange highlights the importance of the exchange between subordinate and leader (Dansereau, Graen and Haga, 1975). The LMX scale was originally just used for managers (Dansereau, et al., 1975) although further developments of the scale included the relations between subordinate and manager. As a measure it has developed considerably since its inception (O'Donnell, Yukl and Taber, 2012). Team-member exchange (TMX) was first defined by Seers (1989) and originated from research into LMX. High quality exchanges are based on trust, respect, and mutual obligation, while low quality exchange relationships are bound by employment contracts (Wech, Kennedy and Deeter-Schmelz, 2009). Team-member exchange is similar to LMX but involves colleagues rather than supervisors. The idea is that high quality exchanges are reciprocal and lead to improved performance. Leader-member exchange and TMX are significant predictors of job satisfaction, organisational commitment and turnover intentions (Major, Kozlowski, Chao, and Gardner, 1995). Team-member exchange has also positively associated with employee performance and organizational citizenship behaviour.

The importance of LMX and TMX cannot be understated and this research seeks to build on their contribution. The idea developed in this paper is that there are three components to worker relations. These are the relations that individuals have with their co-workers, their supervisor and the organisation as a whole. Positive worker relations are beneficial to the employee and the financial success of an organisation (Madlock and Booth-Butterfield, 2012). Indeed, Bruning and Ledingham (1999) suggest that positive relationships between staff contribute to the public perception of an organisation. Madlock and Booth-Butterfield (2012) further add that positive workplace relationships are essential for organisational outcomes such as job satisfaction, psychological health and increased work production. These will be examined along with organisational climate to explore a three dimensional model of worker relations.

Job satisfaction

Worker relations have been seen as an important variable in job satisfaction research (Baruch-Feldman, Brondolo, Ben-Dayan, and Schwartz, 2002; Frone, 2000; Witt, Andrews

and Kacmar, 2000) and organisational climate (Bennett and Lehman, 1999; Mulki, Jaramillo and Locander, 2006; Pritchard and Karasick, 1973). Baruch-Feldman, et al. (2002) examined traffic wardens from a social support perspective, identifying that positive support from co-workers, squad supervisors and unit supervisors was positively associated with job satisfaction and negatively associated with job burnout. Frone (2000) also examined worker relations from an interpersonal conflict perspective creating two four-item measures for conflict with supervisors and with co-workers. Both conflict with supervisors and conflict with co-workers were negatively associated with job satisfaction indicating that when a breakdown of relations occurred, measured in their study as interpersonal conflict, it associated with lower levels of job satisfaction. The absence of conflict with supervisors and co-workers should not be considered the same as positive worker relations. However, while Baruch-Feldman et al (2002) and Frone (2000) examined worker relations at the co-worker and supervisor level they did not investigate the interaction between the individual and the organisation.

Relations with the organization were examined by Witt et al. (2000) who found an association between an individual's perception of organisational politics and their job satisfaction and indicating that organisational level relations may have a negative impact on job satisfaction. Although Witt et al.'s (2000) measure does not explicitly claim to measure worker relations at the organisational level it is reasonable to assume that perceptions of negative or destructive organisational politics would be similar to the concept of having poor worker relations with an organisation. This view is supported by Hodson's (1997) survey which found that poor relations at the organisational level led to infighting between different departments, low levels of co-worker support and low job satisfaction. Hodson's evidence suggests that organisational level relations should be considered integral to any measure of worker relations due to the effect that they appear to have on co-worker support and an individual's job satisfaction.

Previous research conducted at an individual co-worker, supervisor and organisational levels has demonstrated a positive association with job satisfaction hence our first hypothesis:

> **H1:** Worker relations measured at an individual, supervisory and organisational level are positively related to job satisfaction.

Climate research and worker relations

Organizational climate research has attracted attention for over 50 years on the basis that employees' perceptions of their working environment influence desired states such as

satisfaction, commitment and innovation. Research often attempts either to describe a global organizational climate (Patterson, Warr and West 2004; Patterson, West, Shackleton, Dawson, Lawthom, Maitlis, Robinson, and Wallace, 2005; Schulte, Ostroff and Kinicki, 2006) or a local 'climate for' approach such as climates for innovation, safety and ethics, (May, Gilson and Harter, 2004; Mulki, et al., 2006). Perceptions of climate can also be taken at the individual or unit level. This is necessary because the shared perceptions existing in a work group can have an additional influence on individual-level perceptions and their relations with other outcomes (Hellriegel and Slocum, 1973; Schulte et al., 2006).

Schulte et al. (2006) created an organizational climate measure following their research in U.S. banks but across its eight dimensions it does not appear to address relations among workers. The 'Organizational Climate Measure' of Patterson et al. (2005) contains 17 dimensions but unfortunately does not address worker relations. While global measures of climate are useful it seems clear that organizations have many climates (Schnieder, 1975) the implication being that researchers need to identify the climates of interest to them and have access to accurate measures in each case. Bennett and Lehman (1999) also examined organisational climate in terms of factors that supported total quality management principles such as teamwork, customer orientation and empowerment. They also investigated negative worker relations measured through five items involving problem co-workers that included exposure to substance abuse, consequences of substance abuse, exposure to violence, exposure to harassment and the felt effects of violence or harassment. This measure of problematic co-workers was negatively correlated with productivity and teamwork. Mulki et al. (2006) examined ethical organisational climate in terms of the perceptions of ethical standards reflected in the organisation. They were particularly interested in supervisor level worker relations measured as supervisor trust and found this to be associated with job satisfaction, organisational commitment and negatively associated with turnover intentions.

In the temporary worker field, worker relations is a climate-related issue that has been recognised as essential to temporary worker job satisfaction and organisational commitment (Biggs and Swailes, 2006; Chen, Popovich and Kogan, 1999). Chen et al. (1999) found that co-worker satisfaction was correlated with life satisfaction suggesting that worker relations are important in the life satisfaction of agency workers. Biggs and Swailes (2006) demonstrated that when agency workers have poor relations with other, typically permanent, workers this is likely to have negative consequences for a temporary worker's job satisfaction and organisational commitment. In their study some attempt was made to measure worker relations, limited to three specific items about agency temporary work (valued in current position, support for agency workers and anti-agency worker attitudes). The usefulness and

importance of a robust measure of worker relations was demonstrated as being of interest both to the academic and practitioner communities.

The concept of worker relations has been examined in some climate research but typically as an addition to other scales rather than as a central concept (May et al., 2004; Pritchard and Karasick, 1973). Pritchard and Karasick (1973) used an 11-dimensional measure of work climate of which one dimension, social relations, represented the degree to which managers associated with one another in the workplace. Social relations encapsulated in this manner referred primarily to the atmosphere of friendliness and social contact that managers perceived. This scale, while useful, was designed explicitly for managers and thus has limitations regarding wider use. May et al. (2004) examined three psychological conditions of meaningfulness, safety and availability creating a 10-item scale for co-worker relations and a further 10-item scale for supervisor relations. Reliabilities for both of these measures were not given as part of their study, although the authors cited an unpublished document giving good levels of reliability for both scales. Further psychometric properties of the scales were not given so it is difficult to assess how generalisable they are. In addition, worker relations could be influenced by relations between individual employees and their perceptions of the organisation and this aspect was not included.

In summary, Pritchard and Karasick's (1973) measure of social relations is the nearest scale to our concept of worker relations and it was therefore included in this study to develop a new measure. We would expect social relations to be associated with worker relations leading us to the second hypothesis:

> **H2:** Social relations are positively associated with worker relations measured at an individual, supervisory and organisational level.

The field of organisational climate research has to varying extents measured the concept of worker relations and yet there is no consensus around what the concept involves and there is no standardised measure that sees worker relations as a concept spanning the three levels of individual, supervisor and organisation. In applying the worker relations scale across different organizations we would expect to see a difference in relations across workplaces especially if there are differences in the levels of interaction inherent in the jobs that are carried out. To test this, we hypothesise that financial sector workers will have more involvement with colleagues and supervisors than emergency call handlers whose jobs involve dealing with unfamiliar individuals on the telephone and deploying officers through the same medium. Hence hypothesis three:

H3: Worker relations measured at an individual level will be higher in financial services workers (Study 3) than emergency call handlers (Study 2)

In summary, this paper proposes a three component model that captures three levels of worker relations. The model is tested and linked with job satisfaction using Hypothesis H1 and social relations using Hypothesis H2. Hypothesis H3 explores whether different job types reveal different worker relations at the individual level.

Research methods

In order to develop the new scale and in an effort to achieve a parsimonious and balanced scale, a pool of 20 positively and negatively worded items was first created to capture the theoretical domain and the three proposed components of worker relations. The initial item pool was evaluated by a group of human resource practitioners who agreed that item content matched the three components. The full inventory is not shown here but the nine items retained for the new scale are shown in Table I. A seven point Likert-type response scale was used with the following verbal anchors; disagree strongly, disagree, disagree slightly, neutral, agree slightly, agree and agree strongly.

For the purposes of collecting data to examine the structure of the new scale with exploratory factor analysis, the full 20 item worker relations survey was administered to 300 employees of a local government organisation and 157 questionnaires were returned (Study 1). The questionnaires were distributed with a cover sheet explaining participant rights and confidentiality and a return envelope. Principal axis factoring with oblique rotation was used on the grounds that the dimensions of worker relations are likely to be correlated. To obtain data for testing with confirmatory factor analysis the new scale was administered to 220 civilian employees in an Emergency Call Management Service within a UK police force (Study 2). A letter outlining the study was sent to all staff and a sealed post box was provided for staff to return their questionnaires ensuring confidentiality. Eighty five questionnaires were returned. In Study 2, social relations were assessed with the five item scale developed by Pritchard and Karasick (1973) adapted to the sample by changing the word ‘manager’ to ‘worker’. Their original items are: ‘there are many close friendships among managers in this company’; ‘a new manager finds it difficult to make friends in this organisation’; ‘there is little off-the-job social contact between managers in this organisation’; ‘managers here tend to be cool and aloof towards each other’; and, ‘an extremely friendly atmosphere prevails among

the managers in this company'. Pritchard and Karasick (1973) report acceptable levels of internal consistency reliability; 0.68.

Job satisfaction was measured with the general job satisfaction scale developed by Hackman and Oldham (1975). The items were; 'Generally speaking I am very satisfied with this job'; 'I am generally satisfied with the kind of work that I do on this job'; 'I frequently think of quitting this job'; 'Most people on this job are very satisfied with the job', and, 'People on this job often think of quitting'. The Job Diagnostic Survey has been widely used and subsequent research has consistently supported the job characteristics construct both in reliability of the scales and validity of the construct as predictors of job attitudes and behaviours (Biggs and Swailes, 2006). Study 3 replicated Study 2 on a new sample and the survey consisted of the three dimensions of the worker relations scale, the social relations scale and the general job satisfaction scale. In Study 3, 320 questionnaires were distributed in a large financial organisation along with a cover letter inviting participation and explaining how confidentiality would be assured. Seventy surveys were returned.

Results

From Study 1, exploratory factor analysis of the 20 items identified several items with high cross loadings. After eliminating redundant items and in an effort to retain a final balanced scale, nine items made up of three from each of the three theoretical components were retained. The factor structure and the wording of the retained items are shown in Table I. Factor one represents relations with the supervisor, Factor two represents relations among individuals and Factor three represent relations in the organisation. Varimax rotation of the same data gave a similar pattern of factor loadings with the three factors accounting for 57.8% of total variance. Internal consistency reliability (alpha) of the three sub scales was; Individual .74, Supervisor .79, and Organisation .72 which is relatively good given the small number of items in each sub-scale.

INSERT TABLE I ABOUT HERE

Confirmatory analysis on data from Study 2 showed standardized regression weights (loadings on the latent factors) of: I1 .90, I2 .84, I3 .53; S1 .89, S2 .94, S3 .66; O1 .89, O2 .92, O3 .48. Fit indices were χ^2 = 26.3 for 24 degrees of freedom (χ^2/df = 1.1) with a *p* value of .34. The normed fit index was .94, the comparative fit index was .99 and the root mean

square error approximation .034. In comparison, the Independence model had a $\chi 2$ of 412.4 with 36 degree of freedom, p <.001 and an RMSEA of .34. These results indicate very good fit between the nine item, three factor model and the data. Correlation estimates among the latent factors were Supervisor-Organisation .63, Individual-Organisation .20 and Individual-Supervisor .07. Also from Study 2, general job satisfaction showed a significant positive correlation with individual, supervisor and organisational relations (.27, .27 and .57 respectively) supporting hypothesis H1 although the correlations with individual and supervisor relations were smaller than expected. Study 3 had larger correlations between general job satisfaction and individual, supervisor and organisational relations (.62, .83 and .74 respectively). Both of these studies therefore support hypothesis H1 (See Tables II and III).

INSERT TABLE II ABOUT HERE

INSERT TABLE III ABOUT HERE

Study 2 produced moderate positive correlations between social relations and individual, supervisor and organisational worker relations (.37, .22 and .39 respectively). In Study 3, the correlations were much stronger between social relations and individual, supervisor and organisational worker relations (.52, .88 and .84 respectively). Hence hypothesis H2 is supported. Comparing individual relations across organizations (H3) showed that workers within a financial institution (Study 3) had more contact and as a result better relations with their colleagues than in a call centre environment (Study 2). An independent samples t-test supported hypothesis H3 (means 11.5 and 10.0, t=2.47, df=152, p=0.015). The effect size (Cohen's *d*) was 0.39 suggesting a small to medium effect, ie, not trivial.

Discussion

The general finding from the analysis is that the nine item measure is a viable instrument with adequate reliability for assessing the three components of worker relations. Whereas measures of LMX, TMX and organisational climate are much larger and more specific, the new scale tested and proposed here is a more parsimonious measure that can be used to quantify the state of employee relations. The new scale had a moderate association with general job satisfaction with the strongest association relating to organisation-level relations.

This is consistent with research (Baruch-Feldman et al, 2002; Frone, 2000; Witt et al., 2000) suggesting that worker relations are associated with job satisfaction. However, we expected individual level relations to show the strongest correlation with satisfaction and more research is needed here to unpick the relative influence of the three components on job satisfaction.

Relations with the organisation had the strongest link to satisfaction in Study 2 consistent with Dolphin (2005) who examined the importance of internal communication using structured interviews. The importance of fostering a good relationship between the organisation and its employees was identified as one of the most important reasons to encourage internal communication. Dolphin (2005) further suggested that organisational level relations established trust between employees and employers such that when relations are poor, trust is low and thus satisfaction is low. The individual, supervisor and organisational worker relations sub-scales correlated with the social relations scale adapted from Pritchard and Karasick (1973) in both Studies 2 and 3.

Souter and Weaver (1982) advocated the concept of worker relations as well as a short measure that could be easily combined with other measures such as job satisfaction. The scale reported here responds to this call and our experience with consulting clients is that they appreciate the simplicity of a measure that can be easily included in staff surveys. The new scale appears to be a viable measure for highlighting differences in relations and therefore potential sources of tension within an organisation (Sims, 2000). Saks and Gruman (2011) reported that psychological meaningfulness at work can be promoted when individuals felt valued as a product of their interactions with colleagues. Interaction between colleagues, supervisors and the organisation as a whole can enhance or detract from the way individuals feel about themselves. In this study the satisfaction a person feels in their job correlated with all three levels of worker relations. If an individual has poor worker relations, they are less likely to feel satisfied at work with all the negative consequences that may bring. The measure does not assume any permanent work tenure so it can be used both with permanent and temporary workers as research among temporary workers has shown that worker relations are just as important (Biggs and Swailes, 2006). The measure will be useful in studies that focus on the theoretical network of worker relations and it was also developed as an easy to use consultancy tool to be included in organisational surveys as it can quickly demonstrate which groups or departments perceive poor worker relations.

A limitation of this study is the extent to which the full complexity of worker relations can be adequately measured by a scale although this is a general problem facing all studies of this type. Nevertheless, what it can be useful for is an initial quantitative study into an

organisation before more in-depth methods can be employed as was carried out in study two. More specific limitations are the modest sample sizes obtained although the collection of data from three samples helps to offset this. Further evaluation of the new scale's properties and how relations between staff and the organization differ is needed across more occupational groups alongside correlational research to test the scale's theorised connections to other variables. The inclusion of personality assessment or political skill would be useful to assess whether worker relations has a larger effect on those individuals who have a more extroverted personality compared with those who are more introverted. Longitudinal studies that examine relationships between personality dimensions, perceived worker relations and changes in positive states such as satisfaction, commitment and citizenship would be helpful although they are very difficult to design and carry out.

In summary, the researchers have developed and initiated the validation of a new measure that can be used in research and in practice interventions concerned with organizational development.

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Table I. Factor Loadings of Worker Relations items

Item wording	Item	F1	F2	F3
Some co-workers are hard to work with*	I1		.68	
There are certain co-workers that I come into conflict with*	I2		.76	
I find it hard to work with at least one group of workers*	I3		.68	
I am valued by my supervisor	S1	.92		
My supervisor respects me	S2	.77		
I find it hard to work with my supervisor*	S3	.67		
A culture of harmonious working relationships is encouraged in this organisation	O1			.88
Positive working relationships are encouraged in this organisation	O2			.86
The organisation favours certain groups or individuals over others*	O3			.43

Principal Axis Factoring with oblique rotation. * denotes reverse scored items. Loadings less than .4 are not shown.

Table II. Inter and intra scale inter-correlations (Study 2)

Variable	Items	Scale mean	WR Individual	WR Supervisor	WR Organisation	SR	GJS
WR Individual	3	11.2	*71*	04	28*	37**	27*
WR Supervisor	3	15.2		*86*	50**	22*	27*
WR Organisation	3	12.4			*77*	39**	57**
Social Relations	5	23.5				*73*	21
General Job Satisfaction	5	19.3					*84*

* p <.05, ** p < .01 (two tailed). Pearson's *r*. Decimal points omitted. Alphas shown on the diagonal. N= 85. WR = Worker Relations. SR = Social Relations. GJS = General Job Satisfaction.

Table III. Inter and intra scale correlations (Study 3)

Variable	Items	Scale mean	WR Individual	WR Supervisor	WR Organisation	SR	GJS
WR Individual	3	11.5	*79*	49**	48**	52**	62**
WR Supervisor	3	13.9		*91*	80**	88**	83**
WR Organisation	3	12.3			*71*	84**	74**
Social Relations	5	21.5				*92*	88**
General Job Satisfaction	5	21.2					*91*

* p <.05, ** p < .01 (two tailed). Pearson's *r*. Decimal points omitted. Alphas shown on the diagonal. N= 70. WR = Worker Relations. SR = Social Relations. GJS = General Job Satisfaction.