Original article

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Relational justice, economic fluctuations, and long-term sickness absence: a multi-cohort study

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Objectives Previous studies mainly based on the public sector show that organizational justice is associated with a lower risk of sickness absence (SA). The purpose of this study is to analyze this association with multi-cohort data from different employment sectors and to discover whether the association varies according to the general economic context or financial situation of the workplace.

Methods Cross-sectional Finnish Quality of Work Life surveys from 1997, 2003, and 2008 were combined with data on long-term SA obtained from the Finnish Social Security Institution. The associations between SA periods in the three years following each survey and perceived relational justice, general economic context, and the perceived financial situation of the workplace were analyzed with negative binomial regression.

Results Higher level of relational justice was statistically significantly associated with lower rate of SA after controlling for baseline health, but not after controlling for job control and job demands. An interaction was found with relational justice and the financial situation of the workplace. Higher level of relational justice was related to a lower risk of SA when the financial situation of the workplace was stable, but there was a higher risk of SA when the financial situation was insecure.

Conclusions The association between relational justice and a lower risk of SA is in line with previous studies when the financial situation of the workplace is stable. In unstable economic conditions, employees may have the courage to take sick leave when they are ill if they are fairly treated by their supervisor.

Key terms Finland; job insecurity; psychosocial work environment; sick leave; supervisor.

Psychosocial working conditions are important factors related to employee health and sickness absence (SA). In addition to the balance between job demands and control and social support at work, organizational justice is another aspect contributing to employee health recognized in research (1). It has usually been measured as one or more of the following three concepts of justice: distributive, procedural, and interactional (2). The latter, also called relational justice, refers to the ways in which supervisors treat their employees in personal interactions (3, 4).

Previous studies have found that different aspects of organizational justice are related to a lower risk of SA (5–8). The association seems to be independent of other psychosocial working conditions (5–7). The possible mechanisms linking low organizational justice to ill health and SA are stress, other negative emotions arising from experiences of injustice, and unhealthy behaviors (3, 9).

As Greenberg (9) has noted, many of the studies on organizational justice are based on two large datasets: the British Whitehall II study and the Finnish 10-Town study representing public sector employees. Previous studies have also mainly been based on single cross-sectional or panel surveys representing the situation under certain economic conditions. However, it is possible that the role of relational justice varies according to the general economic context and/or the economic conditions at the workplace.

In this study, we examine these issues with data from both the public and private sectors. This study is based on three cross-sectional surveys (linked with a three-year follow-up containing register-based information on long-term SA) that were conducted under different eco-

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nomic conditions, reflecting small national economy's vulnerability to international trends: (i) in 1997, when Finland was recovering from the economic recession of the early 1990s but unemployment rates were still high; (ii) in 2003, a time of economic upturn when unemployment rates were relatively low; and (iii) in the spring of 2008, before the first signs of the new financial crisis (10). In 1997, Finland's GDP grew by 6% (11), and the unemployment rate was 13% (12). In the subsequent three years (the time span of this study's follow-up), GDP continued to grow strongly and the unemployment rate declined to 10%. In 2003, GDP growth was modest (2%), and the unemployment rate was 9%. The following three years, however, showed stronger growth while unemployment continued to decline. In the early 2008, the Finnish economy reached the peak of a long upward cycle before the global financial crisis hit the country. By the end of 2008, GDP growth came to a grinding halt. In 2009, GDP decreased over 8%, and growth was modest in the following two years. Nevertheless, Finland succeeded in avoiding a strong increase in the unemployment rate. Between 2008 and 2011, unemployment rose from about 6.4% to 8.5% (table 1).

Previous studies utilizing the uncertainty management theory (13) have shown that job insecurity may intensify the effects of organizational justice on health. According to this theory, fair treatment and perceptions of justice are especially important when employees feel insecure about their situation at work. In line with this theory, Elovainio et al (14) have found that negative changes in the workplace moderated the effects of procedural and interactional justice on the rate of SA spells among women; the risk for SA was higher among women who had experienced negative changes in the workplace and reported justice being low compared to those who reported justice being high. In addition, Sora et al (15) have shown that organizational justice moderated the harmful effects of job insecurity on employees' job satisfaction and intention to leave the organization. Based on these studies, it could be expected that the association between relational justice and a low rate of SA is especially strong during unstable or insecure economic conditions.

On the other hand, the association between relational justice and SA may not be similar in insecure situation compared to the association between relational justice and health in general. Like other countries, in Finland, the share of the working-age population taking SA has been inverse to the unemployment rates during recent decades; SA rates are lower during recessions and higher during booms (16). There are many possible reasons for this phenomenon. For example, during recessions, employees may fear losing their jobs and remain on sick leave less often than during booms (17, 18). Although a low level of perceived relational justice may be associated with health problems especially in a financially insecure period, employees may hesitate to call in sick when they experience uncertainty in the workplace.

Thus, the role of relational justice on SA may vary in a similar manner according to the financial situation of the workplace. Previous studies have shown that insecurity at work measured in different ways is related to a lower rate of SA. Vahtera et al (19) have shown that downsizing at an organization was related to a higher rate of SA only among permanent workers but not among temporary workers. Theorell et al (20) found that both downsizing and expansion were related to a lower risk of SA among women at a one-year follow-up. A Finnish study has shown that subjective insecurity was related to presenteeism, ie, working while ill (21). In line with the uncertainty management theory, Leineweber et al (8) hypothesized that low informational justice (a component of relational justice) would be related to lower levels of short periods of SA during insecure situation. When employees feel insecure, they would avoid short absence spells as being absent from work would mean to lose information about upcoming changes at the workplace. Leineweber et al also expected that low interpersonal justice (another component of relational justice) would increase both long and short SA spells especially in uncertain situations. However, the study did not confirm these interactions.

The aim of this study is to analyze whether perceived relational justice is related to a lower rate of SA among Finnish wage and salary earners. A secondary aim is to discover whether the association varies according to the general economic context or financial situation of the workplace.

Table 1. Characteristics of the survey years in the study.[a]

	Survey year		
	1997	2003	2008
Unemployment rate (15-64-year olds) in Finland in the survey year	12.7	9.1	6.4
Unemployment rate during follow-up			
1st year	11.4	8.9	8.4
2nd year	10.3	8.5	8.5
3rd year	9.8	7.8	7.9
GDP, change in volume in the survey year (%)	6.3	2.0	0.7
GDP, change in volume during the follow-up (%)			
1st year	5.4	3.9	-8.3
2nd year	4.4	2.8	3.0
3rd year	5.6	4.1	2.6
GDP per capita in the survey year (EUR)	21 545	29 075	36 457

[a] Sources: Official Statistics of Finland (OSF): Annual national accounts [e-publication]. ISSN=1798-0623. 2017, Appendix table 1. Gross domestic product (GDP) at market prices 1975-2017. Helsinki: Statistics Finland [4 February 2019]. Access method: http://www.stat.fi/til/vtp/2017/vtp_2017_2018-03-16_tau_001_en.html and Official Statistics of Finland (OSF): Population by labor force status, sex, and age. Statistics Finland's PX-Web databases. [4 February 2019]. Access method: http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/StatFin__tym__tyti/statfin_tyti_pxt_001.px/?rxid=81714187-6064-478e-86d3-a5926722e3dd

Methods

Sample

The study was based on the cross-sectional Finnish Quality of Work Life surveys from 1997 (N=2979), 2003 (N=4104), and 2008 (N=4392). The surveys represent 15–64-year-old employees in Finland from all employment sectors working ≥5 hours per week (in 1997, 2003) or ≥10 hours per week (in 2008). The response rates in all surveys were high (1997: 79%, 2003: 78% and 2008: 68%) (10). The survey answers were linked with register-based data maintained by Statistics Finland using the employees' encrypted personal identification codes. The register data includes, for example, annual information on the respondents' employment situation and the number of long-term sick leave days. After excluding those who died or completely retired from work during the survey year or the first year of the follow-up (N=251), the sample size was 11 223 (1997, N=2931; 2003, N=4028; 2008, N=4264). Information on the respondents' status each year was based on employment statistics from Statistics Finland. Statistics Finland approved and conducted the combination of the survey and register data.

Measures

Sickness absence. Information on medically certified SA days was based on the records of the Finnish Social Insurance Institution. Sickness allowance is available for sick leave >9 working days (Health Insurance Act). Sickness allowance can be paid based on earnings, a previous benefit (eg, student, unemployment benefit), or the minimum rate. Thus, the register data also includes the SA of those who were not employed. Sickness allowance can be paid for a maximum of 300 working days based on the same illness. The total number of SA days during the three years following each survey was used as the dependent variable. The SA days can be consecutive or from different SA spells. For those who died or retired during the second or third year of the follow-up, the length of the follow-up was one and two years, respectively.

Relational justice. We measured relational justice with survey questions in which the respondents were asked to evaluate their supervisor. We chose five items that correspond the questions used in previous studies (22, 23) from a larger battery of questions in the Finnish Quality of Work Life Survey (table 2). One factor was found in factor analysis (principal axis factoring), with loadings varying between 0.64–0.79. Also, the reliability was good (Cronbach's α = 0.85).

Table 2. The measures of relational justice

My superior supports and encourages me?
My superior discusses a lot with us?
My superior speaks openly about everything concerning the workplace?
My superior does not care about the employees' feelings? (reversed)
My superior gives sufficient feedback about how well I have succeeded in my work?
Options: Totally agree, agree to some extent, neither agree nor disagree, disagree to some extent, totally disagree

Indicators of financial situation. The financial situation of the respondents' workplace was measured with the following question and categorized into two groups: In your opinion, what is the financial position of your workplace at the moment? (completely stable and secure, fairly stable and secure=1, slightly insecure, very insecure=0). Subjective measures of company performance are widely used in research and typically are interpreted as equivalent to objective measures: the literature suggests that subjective evaluations are appropriate and valid alternatives to objective measurement (24, 25). The year of the survey, in addition, represents the national economy's situation.

Control variables. Sociodemographic control factors included age (15–29, 30–39, 40–49, and 50–64 years old), gender, educational level (basic, vocational, and tertiary). In addition, job tenure (<1, 1–5 and ≥6 years), and employer type (employment sector public or private) were controlled.

Job demands and control were measured with the following questions to correspond as closely as possible to the Demand−Control Questionnaire (26). The items were recorded so that higher values meant higher job demands or job control, and then standardized.

Job demands were measured with the following three items (α=0.66). The items were first separately standardized (ie, their mean is 0 and standard deviation 1), and then summed: (i) Which of the following are present in your work environment? Is [the adverse factor] a burden that affects your work? Time pressure and tight time schedules (not present, not at all, quite little, to some extent, quite a lot, very much); (ii) My work contains tight time schedules (totally untrue, not very true, about true, totally true); (iii) I do not have time to do my work as well and conscientiously as I would like to (totally untrue, not very true, about true, totally true).

Job control was measured with four groups of items that were combined into a single score (α=0.75, 1–4), after summing the item group 1 first: (i) Are you able to influence: the contents of your tasks? the order in which you do your tasks? the pace of your work? your working methods? (a lot, quite a lot, a little, not at all) (α=0.78); (ii) Is your work: highly monotonous, rather monotonous, quite varied, highly varied?; (iii) Do you

Table 3. Descriptive statistics of the independent variables and their associations with long-term sickness absence (SA) days [SD=standard deviation; RR=rate ratios; 95% CI=95% confidence interval].

	N	%	Mean	SD	RR	95% CI
Relational justice (scale 1–5)	10 731		3.63	0.95	0.87	0.81–0.93
Workplace financial situation						
Slightly or very insecure	1869	17.0			1.12	0.95–1.32
Fairly or completely stable and secure (reference)	9130	83.0			1	
Survey year						
2008	4264	38.0			1.04	0.87–1.24
2003	4028	35.9			1.07	0.90–1.28
1997 (reference)	2931	26.1			1	
Gender						
Women	5995	53.4			1.16	1.01–1.32
Men (reference)	5228	46.6			1	
Age (years)						
50–64	3014	26.9			3.09	2.50–3.81
40–49	3226	28.7			2.14	1.74–2.62
30–39	2798	24.9			1.34	1.08–1.68
15–29 (reference)	2185	19.5			1	
Education						
Higher education	3904	34.8			0.43	0.36–0.52
Vocational	5347	47.6			0.70	0.59–0.82
Basic (reference)	1972	17.6			1	
Job tenure (years)						
≥6	5997	53.6			1.44	1.17–1.76
1–5	3257	29.1			0.94	0.75–1.19
<1 (reference)	1925	17.2			1	
Employment sector						
Private	6969	62.3			0.72	0.63–0.82
Public (reference)	4223	37.7			1	
SA days in previous year						
Yes	1183	10.5			3.10	2.69–3.59
No (reference)	10040	89.5			1	
Long-standing illness						
Yes	3286	29.3			2.41	2.12–2.74
No (reference)	7924	70.7			1	
Job demands (standardized)	11 069		0.00	0.77	1.04	0.95–1.14
Job control (standardized)	10 997		0.00	0.75	0.86	0.78–0.95
Psychological symptoms (scale 6–30)	11 170		9.90	4.24	1.08	1.06–1.09

yourself take part in the planning of your work (eg, what should be done, how, and with whom) (always, often, sometimes, never); (iv) Are you able to apply your own ideas in your work (always, often, sometimes, never).

Health-related factors were measured with two variables in the main analyses. A variable indicating whether the respondent had had any long-term SA days in the year preceding the survey or not was based on the register data (yes=1, no=0). Long-standing illness was measured with a survey question indicating whether the respondents suffer from "any permanent injury or medically diagnosed chronic illness (such as cardiovascular, pulmonary or musculoskeletal disease, disease of the digestive system, or some other long-term illness)" (yes=1, no=0).

In a supplementary analysis (data not shown), we adjusted for psychological symptoms that were measured with items indicating how frequently the respondents had recently suffered from: (i) fatigue, apathy, or lack of energy; (ii) difficulties in falling asleep or recurrent awakenings at night; (iii) depression; (iv) over-exhaustion; (v) tenseness, nervousness, or irritability; and (vi) feeling that it is "all just too much". In the combined data, the scale ranged from 1=daily or almost daily to 5=less often/never. A sum score of these six items was used in the analyses, and recorded so that a higher value meant more frequent symptoms (α=0.80, range 6–30).

Statistical analyses

We analyzed the associations between the employees' views of relational justice and the rate of SA days during the three subsequent years with negative binomial regression. In model 1, we controlled for sociodemographic factors (gender, age, education), employment sector and tenure along with the factors indicating economic conditions (survey year and the financial situation of the workplace). Model 2 additionally controlled for baseline health: the respondents' SA in the year preceding the survey and long-standing illness. Model 3 additionally controlled for job control and job demands to determine whether relational justice has an independent association with SA unrelated to other working conditions. Interactions between relational justice and survey year (1997, 2003, and 2008), and relational justice and financial situation of the respondent's workplace were analyzed after including all control variables. The number of SA days were calculated for the years the respondents were available in the labor market (ie, had not died or retired full-time). Varying follow-up times (ie, 1–3 years) were taken into account in the analyses. As there was no interaction between relational justice and gender on SA, we combined men and women in the analyses.

Results

The mean of the total number of long-term SA days was 11.5 [standard deviation (SD) 35.9] days for those with a follow-up of three years (N=10 768). The means were 40.0 (SD 78.2) days and 31.8 (SD 67.0) days for those with a follow-up of two years (N=236) and one year (N=219), respectively (ie, for those who died or retired during the follow-up). Table 3 shows the distribution of independent variables and their association with SA days. Higher level of relational justice and job control were associated with a lower rate of SA days. In addition, employees with a higher education and those employed in the private sector had a lower risk for SA. Women, older employees, and employees with a longer tenure, SA in previous years, a long-standing illness, and more psychological symptoms had a higher risk for SA days.

Higher level of relational justice was associated with a lower rate of SA when sociodemographic factors,

tenure, sector (table 4, model 1) and health measured at the baseline were controlled for (model 2). However, the association became non-significant when job control and job demands were taken into account (model 3). The association changed only marginally when psychological symptoms were included as an additional covariate (RR 0.96, 95% CI 0.89–1.04).

The interaction between relational justice and survey year was not statistically significant. In the analyses stratified by survey year, higher level of relational justice was statistically significantly associated with lower rate of SA only in 2003 when demographic factors, tenure, sector, and baseline health were adjusted for (table 5, model 2). As with the whole sample, the associations were not statistically significant in any survey year after adjusting for job control and demands (model 3). The associations changed only marginally after additionally adjusting for psychological symptoms in a supplementary analysis (1997: RR 1.00, 95% CI 0.87–1.15; 2003: RR 0.94, 95% CI 0.84–1.06, 2008: RR 0.93, 95% CI 0.82–1.05).

However, there was a statistically significant interaction between relational justice and the financial situation of the workplace. To interpret this result, we divided the data into two groups according to the financial situation of the workplace (table 5). Among those with stable financial situation at their workplace, higher level of relational justice was associated with a lower rate of SA after adjusting for all control variables (RR 0.88, 95% CI 0.81–0.96). Among those with unstable financial situation at their workplace, higher level of relational justice was associated with a higher rate of SA after adjusting for all control variables (RR 1.19, 95% CI 1.03–1.38). These associations changed only marginally after additionally adjusting for psychological symptoms in a supplementary analysis; the RR was 0.91 (95% CI 0.84–0.99) among those with stable financial situation at their workplace and 1.20 (95% CI 1.03–1.39) among those with unstable financial situation at their workplace.

Discussion

This multi-cohort survey study analyzed the associations between perceived relational justice, national and workplace-level economic uncertainty and register-based information on long-term SA days over the subsequent three years. Higher level of relational justice was asso-

Table 4. Associations of relational justice, survey year, and financial situation of the workplace with long-term sickness absence days [RR=rate ratios; 95% CI=95% confidence interval].

	N [a]	Model 1 [b]		Model 2 [c]		Model 3 [d]	
		RR	95% CI	RR	95% CI	RR	95% CI
Relational justice [e]	10 196	0.86	0.82–0.96	0.91	0.84–0.98	0.93	0.86–1.01
Financial situation of the workplace							
Slightly insecure, very insecure	1727	1.11	0.94–1.33	1.12	0.94–1.35	1.10	0.92–1.31
Fairly or completely stable and secure (reference)	8469	1		1		1	
Survey year							
2008	3925	1.15	0.93–1.41	1.12	0.91–1.36	1.11	0.91–1.36
2003	3629	1.16	0.94–1.43	1.17	0.95–1.43	1.15	0.94–1.42
1997 (reference)	2642	1		1		1	

[a] Those with missing value in any of the variables were excluded from all models. The N in the table is different from N in table 3 due to missing values among covariates.
[b] Adjusted for age, gender, educational level, tenure, employment sector.
[c] Model 1 + sickness absence in previous year (yes/no), long-standing illness (yes/no).
[d] Model 2 + job control and job demands.
[e] One unit increase in relational justice score (range 1–5).

Table 5. Associations of relational justice with long-term sickness absence days according to perceived financial situation of the workplace and the survey year [RR=rate ratios; 95% CI=95% confidence interval].

Relational justice	N [a]	Model 1 [b]		Model 2 [c]		Model 3 [d]	
		RR	95% CI	RR	95% CI	RR	95% CI
Financial situation of the workplace							
Slightly or very insecure [e]	1727	1.03	0.91–1.18	1.07	0.94–1.22	1.19	1.03–1.38
Fairly or completely stable and secure	8469	0.85	0.78–0.93	0.87	0.80–0.95	0.88	0.81–0.96
Survey year 1997	2642	0.93	0.79–1.10	0.97	0.84–1.12	0.99	0.87–1.14
Survey year 2003	3629	0.85	0.76–0.95	0.85	0.76–0.96	0.90	0.80–1.02
Survey year 2008	3925	0.88	0.78–1.00	0.91	0.81–1.03	0.90	0.79–1.03

[a] Those with missing value in any of the variables were excluded from all models. The N in the table is different from the N in table 3 because of missing values among covariates.
[b] Adjusted for age, gender, educational level, tenure, employment sector (and survey year or the financial situation of the workplace)
[c] Model 1 + sickness absence in previous year (yes/no), long-standing illness (yes/no)
[d] Model 2 + job control and demands
[e] One unit increase in relational justice score (range 1–5).

ciated with a lower rate of SA after controlling for the sociodemographic, tenure, and sector background and baseline health, but not after adjusting for job control and job demands. The result is somewhat in contrast with previous studies based on public-sector employees that have found an association between different measures of organizational justice and SA rates also after controlling for other psychosocial working conditions (5, 6).

Contrary to our expectations, there was no interaction between relational justice and the general macro-economic conditions indicated by the survey year. However, the interaction between relational justice and financial situation of the workplace was statistically significant. Higher level of relational justice was associated with a lower rate of SA days among employees who perceived the financial situation at their workplace to be fairly or completely stable and secure. This association remained statistically significant after adjusting for sociodemographic factors, tenure, sector, baseline health, and job control and job demands. Among those who perceived the financial situation at their workplace to be slightly or very insecure, higher level of relational justice was associated with a higher risk of SA. Previous studies have found that job insecurity is related to a lower risk of SA and a higher risk of working while ill (20, 21). In the present study, perceived financial instability of the workplace was not, as such, associated with SA rates. However, the interaction found in this study can be interpreted to mean that during unstable financial situation at the workplace, employees may have more courage to take sick leave while being ill when they are fairly treated by their supervisor. This association can also be interpreted the other way around, as suggested by Leineweber et al (8), although referring to short SA: low relational justice is associated with lower rate of SA, as employees are reluctant to take sick leave and lose information about the changes in their workplace when feeling insecure.

The result is in contrast with the study by Elovainio et al (14), which found that high organizational justice was related to a lower rate of SA when employees reported negative changes at the workplace. It is possible that "negative changes" is a broader concept, and captures different aspects of the working environment than the concept of economic insecurity used as the moderator in the present study. Another previous study based on panel data (8) found no interaction between relational justice and job insecurity on employees' SA rates. Differences in study designs and measures used may at least partly explain the differences in results.

In the analyses stratified by the financial situation at the workplace, relational justice was associated with SA rates also after controlling for job control and job demands. These findings are in line with previous studies showing that relational justice, along with other organizational justice components, are independent of other psychosocial working conditions contributing to employees' health (5–7).

This study also includes some limitations that must be taken into account when interpreting the results. In many previous studies, information on SA days were retrieved from the employers' register and the employees were followed up as long as they were employed in the same organization. The respondents of the present study represent wage earners in Finland and information on SA days were available from the Finnish Social Insurance Institution, which includes data on all long-term SA days irrespective of employment status. In this study, it was not possible to know whether the respondents were in the service of the same employer during the follow-up, and thus whether their experiences of relational justice changed or not. This may have weakened the association between relational justice and SA days. Furthermore, this may have also weakened the interaction between relational justice and the general economic conditions on SA days. The survey in 2008 was conducted in the spring just before the financial crisis, and the follow-up for SA days began in 2009. It is possible that some of the respondents changed or lost their jobs after the survey, which makes the associations between perceived relational justice at the time of the survey and the later SA days less certain.

It is also a limitation that the differences between the survey years were not ideal to our study design. None of the survey years represented a deep recession; in 1997 Finland was already recovering from the recession, whereas in 2008, at the time of the survey, the recession had not yet started. The proportion of employees evaluating the financial situation at their workplace as slightly or very insecure was highest in 2003 (19.5%), a year with generally stable macro-economic conditions. The proportions for 1997 and 2008 were 16.2% and 15.5%, respectively, representing no clear pattern. On the other hand, the financial situation at the workplace may in any case be more important for employees' perceptions of insecurity than the macro-economic situation.

As this study was based on observational data, the results cannot be interpreted causally. In some previous studies, it has been possible to take into account workplace-level perceptions of relational justice to avoid reporting bias and better discover causal associations (5, 6). It was not possible to use workplace-level information in this study.

In conclusion, this study showed that fair treatment by the supervisor is related to a lower risk of SA among a representative sample of Finnish wage earners. Although relational justice was not statistically significantly related to a lower rate of SA after full adjustments in the whole sample, the association was significant in the subgroup of those with a stable financial situation

at their workplace. Among those with unstable financial situation at their workplace, relational justice was related to a higher rate of SA days. During unstable financial situation, fair treatment by the supervisor may prevent employees from deciding to work while they are ill. Interpreted like this, the finding is in line with the uncertainty management theory. One suggestion for future research, however, is to consider the mixed sources for stress. Employees may seek to change jobs and undergo stress related to workplace financial insecurity or even downsizing, and individual job search simultaneously, which may further add moderators to the association between relational justice and SA.

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