

# Organizational Justice, Selection, Optimization With Compensation, and Nurses' Work Ability

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**Objective:** To explore associations between age, organizational justice, selection, optimization with compensation (SOC), and work ability. **Methods:** Data for this study were collected in 2011 among 605 employees (mean age = 43.7, SD = 10.7, 86% women) working at a university hospital in Finland. **Results:** Age and work ability were negatively associated. Those who experienced high organizational justice and used SOC behaviors at work reported better work ability. The SOC behaviors mediated the relationship between justice and work ability. This meant that high experiences of organizational justice facilitated the use of SOC and thus helped employees maintain their work ability. **Conclusions:** Organizational justice can help promote work ability in two ways—directly by supporting employees' mental resources and indirectly by facilitating the use of individual resource allocation strategies in the form of SOC behaviors.

As the workforce is aging in the Western countries, it is important to find ways to promote work ability of aging employees.<sup>1</sup> Work ability, which indicates the balance between employees' personal resources and work demands,<sup>1,2</sup> declines especially in the age group of 52- to 58-year-olds,<sup>3</sup> even if these changes vary in both onset and speed.<sup>4,5</sup> On the basis of previous research, the strongest predictors of work ability are individual factors such as age, health, fitness, and lifestyle and work demands.<sup>6-8</sup> In addition, factors related to the work organization and life outside of work also come into play.<sup>1,8,9</sup> Despite the current findings, the role of individual resource adaptation strategies and psychosocial workplace factors in maintaining employees' work ability remains unclear.

Age-related decline in work ability has been associated with the loss of vital mental, physical, and social resources.<sup>1,2,8</sup> The life span model of selection, optimization with compensation (SOC) by Baltes and Baltes<sup>10</sup> posits that aging individuals can draw upon selection, optimization, and compensation to invest their remaining resources in counteracting losses brought about by aging.<sup>10,11</sup> The SOC model has frequently been used in the work context to understand how individuals modify their behavior to compensate for the loss of these resources.<sup>12-14</sup>

While little is known about the association between the use of SOC behaviors and work ability, some studies have linked the use of SOC to work ability and found either a direct<sup>15,16</sup> or indirect<sup>13</sup> association between the use of SOC and supervisor-rated work ability. More specifically, the low use of SOC at work and subsequent failure to adapt to changing resources resulted in poor work ability.<sup>15,16</sup> In terms of promoting work ability, the use of SOC strategies can

mean refocusing on more interesting and important goals, developing and/or rescaling skills, or rescheduling working time and refocusing energy.<sup>1,2,10,11</sup> The SOC strategies can be used by employees of all ages. Nevertheless, individuals at old and very old age are more likely to encounter health-related constraints and losses in reserves.<sup>17,18</sup> Hence, it is likely that using SOC behaviors is associated with better work ability especially among older employees compared with younger employees. Furthermore, a positive connection between the use of SOC strategies at work and work ability, especially among older versus younger nurses, was found by Müller et al.<sup>15,16</sup>

Organizational justice, which consists of distributive, procedural, interpersonal, and informational justice,<sup>19</sup> indicates if an employee feels that the rewarding, decision-making and treatment practices are generally experienced to be fair.<sup>20</sup> Perceived injustice at work has been linked to several indicators of ill health, such as psychiatric morbidity,<sup>21</sup> psychological work strain,<sup>22</sup> and sickness absence.<sup>23-26</sup> While little previous evidence exists, it is expected that perceived (in)justice may also affect the health foundation of work ability. More specifically, prolonged work stress brought on by perceived injustice<sup>22,27</sup> is likely to affect work ability by decreasing employees' mental resources and increasing the prevalence of chronic illnesses.<sup>1</sup>

We address the gaps identified earlier by exploring the relationships between age, use of SOC behaviors at work, perceived organizational justice, and work ability. In addition to the main effects of age, the use of SOC behaviors, and organizational justice on work ability, we explore age as a moderator in the relationship between the use of SOC and work ability and the use of SOC behaviors as a mediator in the relationship between organizational justice and work ability. On the basis of the theoretical framework and previous findings, we hypothesize that age is negatively and use of SOC and organizational justice positively associated with work ability. Furthermore, we expect that the use of SOC behaviors mediates the relationship between organizational justice and work ability and that age moderates the relationship between the use of SOC and work ability in that the association between the use of SOC behaviors and work ability is stronger for older employees than for younger employees.

## METHODS

### Participants

Data for this study were collected in a research project on employee well-being and company performance called Hyöty by the Finnish Institute of Occupational Health in collaboration with Aalto University School of Business in 2011. Participants of this cross-sectional study were working as nurses, clerical workers, therapists, or head nurses at wards in a university hospital in Finland. Data were gathered from several service centers, including the diagnostic imaging center, anesthesiology and operation, clinical services, medicinal services, and rehabilitation. All employees of these centers were included in the study. A total of 1267 paper questionnaires were sent out to the participants at their workplaces. Altogether 605 questionnaires were returned (women 85.6%, mean age 43.7 years, SD = 10.7 years, range 20 to 64 years), which yielded a response rate of 48%. The respondents indicated that they worked in an

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There are no conflicts of interest to disclose.

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DOI: 10.1097/JOM.000000000000102

employee (71.9%), clerical (14.4%), or supervisory position (13.9%). An ethical permission to perform this study was obtained from the Ethical Committee of the Finnish Institute of Occupational Health.

### Work Ability

Employees' perceived work ability was assessed with the Work Ability Index,<sup>28</sup> which comprises the following seven items. (1) *A subjective evaluation of present work ability compared to the lifetime best was inquired with the question: "Presume that when your work ability was at its best, the score was 10. What score (0) unable to work to (10) work ability at lifetime best would you give your present work ability?"* (2) Respondents were asked to *evaluate their work ability in relation to the physical and mental demands* on a scale of (1) *extremely poor* to (5) *extremely good*. (3) *The number of diseases diagnosed by a physician* was inquired by presenting the respondents with an extensive list of diseases. (4) Respondents were also asked to *evaluate the degree of work impairment due to a disease* on a scale of (1) *unable to work* to (5) *no impairment at all*. (5) *Absence due to sickness* during the past year was rated on a scale of (1) *100–365 days* to (6) *none*. Finally, respondents were asked about their possibilities to continue at their job for the next 2 years in terms of their (6) *self-rated work ability* and (7) *psychological resources* on a scale of (0) *difficult to say as I have left employment by then* to (3) *most likely to continue at work* and (1) *extremely poor* to (5) *extremely good*, respectively. A summary score of work ability was calculated on the basis of the seven subscales. The total score ranged from 7 to 49 points, with 7 indicating *poor* and 49 *excellent work ability*.

### Selection, Optimization With Compensation

The use of SOC behaviors at work was measured with a modified version of a 12-item, short SOC-questionnaire.<sup>29</sup> This version contains three questions per SOC-component (elective selection, loss-based selection, optimization, and compensation) and it was developed to predict maximally the overall scores.<sup>17</sup> To evaluate the amount of SOC behavior (= target behavior) of the respondents, they were asked to indicate on a scale of 1 to 5 (1 = *very little*, 5 = *very much*), to which extent the certain statements described them at their work. A statement reflecting *elective selection* was, for example, "I concentrate all my energy on few things," *loss-based selection* "When things don't go as well as they have in the past, I choose one or two important goals," *optimization* "I keep working on what I have planned until I succeed," and *compensation* "When things don't go as well as they used to, I keep trying other ways until I can achieve the same result I used to" (for complete statements/items, see for example, Baltes et al<sup>29</sup>). While we were interested in SOC as a general process of adaptation, all individual items of the four SOC components were calculated together as a summary score, called herein SOC variable, which reflected overall SOC behavior (range = 1 to 5, Cronbach  $\alpha$  = 0.814).

### Organizational Justice

Employees' perception of organizational justice was measured with a 12-item scale based on Colquitt's<sup>19</sup> justice scale, which comprise distributive, procedural, and interactional justice. Respondents were asked to evaluate perceptions of justice on a Likert scale of 1 (*disagree strongly*) to 5 (*agree strongly*). Examples of *distributive justice* are "the rewards I receive reflect the effort I put into my job" and "the rewards I receive are justified given my performance." The questions regarding *procedural justice* concerned the decision-making process at the workplace (eg, "the decisions are based on accurate information," "decision making is unbiased," and "workplace rules and principles are applied consistently to all employees"). The third element of justice, *interactional justice*, was measured with questions on, for example, "my supervisor is candid

and truthful in his/her communications," "my supervisor treats me with respect and dignity," and "my supervisor refrains from improper remarks." A summary score consisting of all single items was calculated to reflect an overall score of justice (range = 1 to 5, Cronbach  $\alpha$  = 0.902).

### Demographics

In addition to information regarding their age and gender, the respondents were asked to indicate their highest level of vocational education, which was further categorized into three groups: (1) vocational school or less, (2) college-level degree, and (3) higher-level vocational or university degree. Marital status was used to classify those who were single or living alone and those who were married or cohabiting. Employees were asked to indicate their occupational status, which was further categorized into (1) employee, (2) clerical worker, and (3) supervisory position.

### Statistical Analyses

Path analysis was used to estimate the relationships between age, use of SOC behaviors, organizational justice, and work ability. With work ability and SOC as the dependent variable, control variables (gender, marital status, education, and occupational status), together with age and organizational justice, were entered as independent variables in the model. Previous research has indicated that age, education, marital status, and occupational status are independently associated with work ability,<sup>2</sup> in that older age predicts poorer work ability, whereas higher education and occupational position are associated with better work ability. Age, SOC, justice, and control variables were mean-centered to remove nonessential multicollinearity and to facilitate interpreting the findings. The interaction term between SOC and age was created by multiplying the mean-centered scores.

The fit for the model was good,  $\chi^2(2) = 3.32$ ,  $P = 0.19$ , Root Mean Square Error of Approximation = 0.03, Standardized Root Mean Residual = 0.01, and Comparative Fit Index = 0.99. Together with the control variables (gender, marital status, level of education, and occupational status) age, the use of SOC behaviors, and organizational justice explained a total of 17.2% of the variance in work ability. Model estimation was conducted using software Mplus 6.0.<sup>30</sup>

*t* test was used to test mean differences in work ability according to age (1 = employees younger than 45 years, 2 = employees 45 years and older), gender, and marital status (1 = single/living alone 2 = married/cohabiting). Analysis of Variance was used to test mean differences in work ability according to education, occupational status, SOC, and organizational justice. Data description in this study was performed using PASW Statistics 18.0 (IBM Corporation, Somers, NY) with a significance level of  $P < 0.05$ .

## RESULTS

Means and standard deviations or percentages and bivariate correlations of study variables are presented in Table 1. The mean value of 40.6 (SD = 5.8, scale 7 to 49) indicated good work ability among the respondents. Respondents reported the high use of SOC behaviors and experiences of organizational justice (3.4, SD = 0.5, and 3.2, SD = 0.7, respectively, range 1 to 5). Age was negatively and organizational justice positively correlated with work ability. Furthermore, organizational justice was positively correlated with work ability. A positive correlation between organizational justice and the use of SOC behaviors indicated that those who experienced high organizational justice used more SOC behaviors at work.

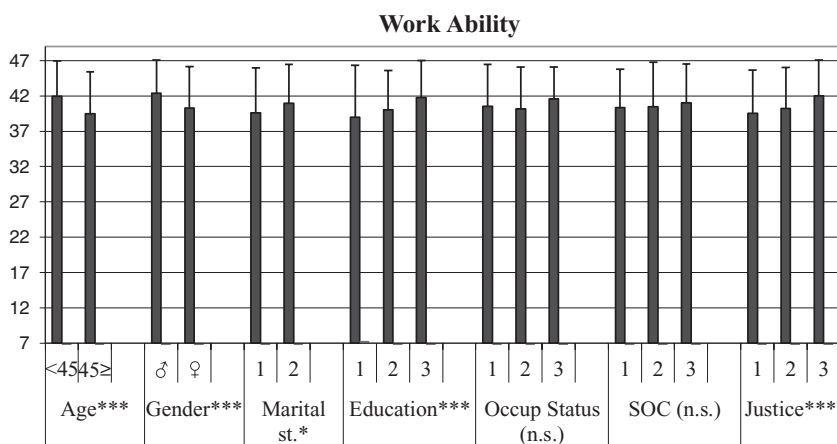
Mean values and standard deviations for work ability according to age, gender, education, occupational status, SOC, and organizational justice are presented in Fig. 1. Employees younger than 45 years reported statistically significantly better work ability than employees older than 44 years ( $t = 5.37$ ,  $P < 0.0001$ ). Work ability

**TABLE 1.** Percentages, Means, Standard Deviations for Study Variables and Bivariate Correlations for Continuous Variables

Variable	<i>n</i>	%/Mean	SD	5	6	7	8
1. Gender, %	605						
Women	518	86%					
Men	87	14%					
2. Marital status, %	598						
Single or living alone	149	25%					
Married or cohabiting	449	75%					
3. Education, %	602						
Vocational school or less	70	11%					
College level	299	50%					
Applied university/ university level	233	39%					
4. Occupational status, %	605						
Employee	433	72%					
Clerical worker	88	14%					
Supervisory position	84	14%					
5. Age, yr	592	43.7	10.7	1			
6. Use of SOC behaviors	601	3.4	0.5	0.04	1		
7. Organizational justice	598	3.2	0.7	0.12**	0.13**	1	
8. Work ability	584	40.6	5.8	−0.27**	0.07	0.18**	1

\*\**P* < 0.01.

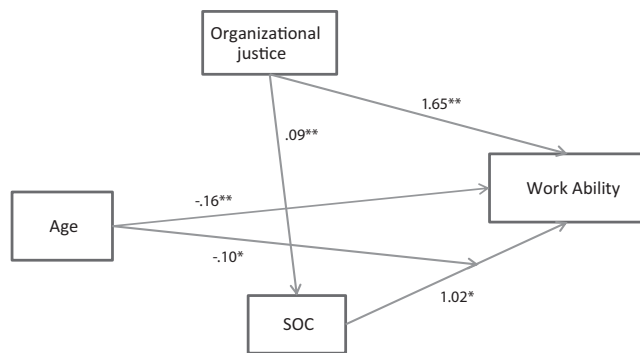
SOC, selection, optimization with compensation.

**FIGURE 1.** Work ability according to age, gender, marital status, education, occupational status, SOC, and organizational justice. Note: work ability, range 7–49, higher score indicating better work ability. Marital status: 1 = single/living alone, 2 = married/cohabiting; education: 1 = vocational school or less, 2 = college-level, 3 = higher vocational/university; occupational status: 1 = employee, 2 = clerical worker, 3 = supervisory position. SOC and organizational justice (range 1–5, higher score indicating higher use of SOC/experience of justice) divided into tertiles, 1 = lowest tertile, 3 = highest tertile. \**P* < 0.05. \*\*\**P* < 0.001. SOC, selection, optimization with compensation.

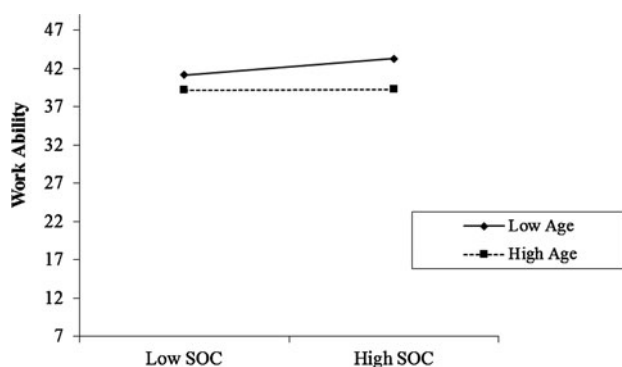
was better for men versus women ( $t = 3.60$ ,  $P < 0.0001$ ), as well as for those with higher education versus lower education ( $F = 8.93$ ,  $P < 0.0001$ ). Finally, those who experienced higher organizational justice versus lower ( $F = 9.67$ ,  $P < 0.0001$ ) reported better work ability.

Pathways along with the path regression coefficients are presented in Fig. 2. All pathway estimates were statistically significant in the adjusted model. We found a negative pathway from age to work ability, which indicated that compared with younger employees, older employees report poorer work ability. There was a positive pathway from both the use of SOC behaviors and organizational justice to work ability. This indicated that employees who use more SOC behaviors at work versus less and experience higher versus lower organizational justice report better work ability. Furthermore, a positive pathway from organization justice to the use of SOC behaviors indicated that employees who experience more organizational justice versus less use more SOC behaviors at work.

Regarding the indirect effects between age, the use of SOC, and organizational justice on work ability, we found that age moderated negatively the association between the use of SOC behaviors and work ability. Following suggestions from previous researchers,<sup>31</sup> we plotted the relationship between the use of SOC and work ability at one standard deviation above and below the mean of age, and the relationship is shown in Fig. 3. Contrary to our hypothesis, this indicated that the relationship between the use of SOC behaviors and work ability was stronger for younger versus older employees. Finally, in addition to the direct effects of organizational justice and the use of SOC behaviors on work ability, we examined the indirect effect between organizational justice and work ability through SOC by testing a potential mediation. We found that the use of SOC behaviors mediated the relationship between organizational justice and work ability in that experiences of higher versus lower organizational justice can help employees through the use of SOC behaviors at work maintain their work ability.



**FIGURE 2.** The path analysis model of the relationships between work ability and SOC, organizational justice, and control variables (age, gender, marital status, education, and occupational status). Effects of control variables are not reported here for brevity. SOC, selection, optimization with compensation.



**FIGURE 3.** Age moderates the relationship between the use of SOC behaviors and work ability. SOC, selection, optimization with compensation.

## DISCUSSION

This study, based on materials collected among 605 different aged Finnish nursing professionals, explored the interplay between age, organizational justice, use of SOC behaviors at work, and work ability. We found age to be negatively associated with work ability. As hypothesized, we found that employees who use more SOC behaviors at work or experience high organizational justice report better work ability. We also found that employees who experience high organizational justice use more SOC behaviors at work. Organizational justice can help employees through the use of SOC behaviors at work maintain their work ability. Finally, contrary to our hypothesis, age moderated the relationship between the use of SOC behaviors and work ability such that the relationship was weaker for older employees.

The negative association between age and work ability in this study is supported by several previous findings.<sup>2–4,8,15,16</sup> Furthermore, the positive association between the use of SOC behaviors and work ability is in line with previous studies, also reporting on SOC and work ability.<sup>15,16</sup> Using SOC strategies at work can help employees compensate for resource losses,<sup>10</sup> which ultimately results in a better balance between employees' resources and job requirements, that is, work ability. Consequently, poor work ability is associated with several important work outcomes such as disability, spells of sickness absence, and early retirement,<sup>7,32</sup> even old age disability.<sup>33</sup> On a societal level, helping older employees maintain or even regain their work ability can contribute to longer work careers.<sup>2</sup>

The negative moderating effect of age in the association between the use of SOC behaviors and work ability was contrary to our hypotheses and in conflict with previous studies.<sup>15,16</sup> Several possible explanations for older respondents benefiting less from using SOC behaviors when maintaining their work ability can be found. First, applying SOC behaviors requires sufficient physical, mental, and social resource, which employees in advanced old age may not possess.<sup>17</sup> The second and a more likely explanation for this finding is that older employees who would have benefited from using SOC behaviors in terms of maintaining their work ability have exited working life, for example, due to disability. On a general level, better health predicts better physical and mental resources and work ability.<sup>6–8,10</sup> The respondents in this study reported having relatively good work ability, as only 4.3% reported poor and 15.4% moderate work ability. Third, the occupational status of the older nurses may help us interpret the role of age in the use of SOC behaviors and work ability. Characteristic to the Finnish nursing profession (Official Statistics of Finland, 2013), supervisory or clerical position nurses were older (48.1 and 49.1, respectively) than employees (41.7 years). Employees in supervisory positions are likely to have more decision latitude in their jobs<sup>34</sup> and thus rely less on individual resource allocation strategies in maintaining their work ability.

The positive association between organizational justice and work ability indicates that employee experiences of organizational justice are important to consider when dealing with challenges in maintaining work ability. As perceptions of injustice may have negative influences on employees' mental health,<sup>21,22,24,25,27</sup> these adverse effects can further be reflected in decreased work ability. While little previous findings on the association between organizational justice and work ability exist, other variables related to organizational climate, such as job control,<sup>13,15,16</sup> have been studied. A mediation effect of job control indicated that the use of SOC strategies at work was associated with work ability through higher autonomy at work.<sup>16</sup> Providing employees with autonomy at work, as well as fair treatment, is an essential part of good management practices. The maintenance and promotion of work ability require cooperation between supervisor and employee.<sup>1,2</sup> On a broader scale, promoting work ability means taking work demands, the environment, work organization, and an employee's health, functional capacity, and competences into consideration.<sup>28,35</sup>

Several limitations have to be addressed when evaluating the findings of this study. First, as data come from a cross-sectional study, we cannot evaluate the effect of intraindividual changes, that is, aging, in the relationship between organizational justice, SOC, and work ability. Disentangling the effects of age, period, and cohort<sup>36</sup> in the interplay between age, organizational justice, use of SOC behaviors, and work ability would require longitudinal data, with a cohort-sequential design. Second, selection due to the healthy-worker effect<sup>37,38</sup> may have occurred in the study, as those who have poor health and work ability have probably retired early. In general, those who are occupationally active tend to be healthier and may have better access to occupational health services than those who exit employment.<sup>37</sup> Third, assumptions regarding the causal relationships cannot be made. In this study, there is theoretical basis for assuming that the use of SOC behaviors affects work ability. It might still be that a reciprocal relationship exists, which would mean that employees with better work ability are capable of using more SOC behaviors.<sup>10</sup> Nevertheless, our findings are supported by other similar studies.<sup>16,15</sup> In addition, using path analysis helps identify the directions of pathways in the present study. A pathway from work ability to the use of SOC behaviors was not found, which further speaks against a reciprocal relationship.

Fourth, materials for this study came solely from a self-report questionnaire, which raises questions regarding the validity of the measures and possible common method variance. The scales used to measure work ability, organizational justice, and the use of SOC

behaviors are based on well-established scales. The reliability of the scales in this study was relatively high (Cronbach alphas 0.902 and 0.814). We controlled for common method variance by performing Harmon's One Factor Test<sup>39</sup> on the scales of use of SOC behaviors and organizational justice. The unrotated exploratory factor solution showed that six factors with eigen values over 1 emerged from the 22 study items and that together they extracted 67.4% of the variance (individual factors ranging between 25.7% and 4.2%). Hence, the scales used in this study seemed to indicate that the observed covariance among study variables is attributable to valid relationships. The results of this study were based on materials collected among Finnish nursing professionals and they should be generalized into the general working population cautiously. Collecting data from professions other than nursing would make it possible to generalize findings across different sectors and industries.

In conclusion, as age-related changes in resources are likely to steer older employees' work ability on a trajectory of decline, promotion of individuals' resources is essential. Use of SOC behaviors, together with organizational justice, was associated with better work ability among employees of all ages. Organizational justice may have a positive role in maintaining employee work ability above and beyond individual resource allocation strategies.

### ACKNOWLEDGMENTS

We thank MSc Le Zhou for statistical help. The authors also thank the Work Environment Fund (grant number 110319) for financial support. M.E.v.B. has received support from the Academy of Finland (grant number 250681) and M.B.v.B. from the Academy of Finland (grant number 257239) in the preparation of this manuscript.

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