Social capital at work and sick leave in Chinese enterprise employees: A validation study

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The road to a good workplace: "The three diamonds"
Background

Cross-sectionally and prospectively, social capital at work is found to be associated with:

- **Health related risk behaviors:**

- **Self-rated health:**

- **Depression:**
  - Oksanen T, et al. Prospective study of workplace social capital and depression: are vertical and horizontal components equally important? J Epidemiol Community Health, 2010, 64 (8): 684-689. (Finland)

- **All-cause mortality:**

However, - no study from developing country;
- no study examining association with productivity.
Objectives

- To validate a short measure of social capital at work in Chinese enterprise employees;
- To explore the association between social capital at work and sick leave.
Methods

- **Study design:**
  - Cross-sectional study

- **Subjects:**
  - 953 Chinese enterprise employees working in 18 companies (chemical factory, tobacco company, glass company, mechanical company, pesticide company, paper factory, paint company, fertilizer company, perfume company, cement factory, materials company, and aluminum company) (response rate: 97.37%).
Methods

- Measurement:
  - Social capital at work
    (derived from Copenhagen Psychosocial Questionnaire)

  - Trust: T1: Does the management trust the employees to do their work well?
    T2: Can you trust the information that comes from the management?
  - Justice: J1: Are conflicts resolved in a fair way?
    J2: Is the work distributed fairly?
  - Collaboration: C1: Is there good co-operation between the colleagues at work?
    C2: Do you feel part of a community at your place of work?

  Response categories: 5-point Likert scale

- Sick leave

  During the past 4 weeks, how many days were you absent from work because of your health problems?

  Being dichotomized as “No any day” and “One day or more”
Methods

- **Data analysis:**
  - Internal consistency reliability: item-total correlations and Cronbach’s alpha coefficients
  - Structural validity: confirmatory factor analysis
  - Criterion validity: association between social capital at work and sick leave (multilevel logistic regression modeling)
    - Hierarchically structured data
    - SAS 9.2: Glimmix procedure
  - Consecutive models tested:
    - Null model
    - Adding individual-level social capital at work
    - Adding company-level social capital at work (aggregated mean scores at company level)
### Results

Table 1  Characteristics of study subjects (n=953)

<table>
<thead>
<tr>
<th>Variables</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) (mean ± SD)</td>
<td>34.82 ± 8.97</td>
</tr>
<tr>
<td>Work tenure (year) (mean ± SD)</td>
<td>13.96 ± 9.98</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>698 (73.24)</td>
</tr>
<tr>
<td>Women</td>
<td>255 (26.76)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>255 (26.76)</td>
</tr>
<tr>
<td>Married or cohabited</td>
<td>698 (73.24)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Middle school or below</td>
<td>236 (24.76)</td>
</tr>
<tr>
<td>High School</td>
<td>505 (52.99)</td>
</tr>
<tr>
<td>University or above</td>
<td>212 (22.25)</td>
</tr>
<tr>
<td>Income (yuan / month)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1000</td>
<td>118 (12.38)</td>
</tr>
<tr>
<td>1000 – 2000</td>
<td>442 (46.38)</td>
</tr>
<tr>
<td>&gt; 2000</td>
<td>393 (41.24)</td>
</tr>
<tr>
<td>Sick leave</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>827 (86.78)</td>
</tr>
<tr>
<td>Yes</td>
<td>126 (13.22)</td>
</tr>
</tbody>
</table>
## Results

Table 2  Means, SDs, item-total correlations and Cronbach’s alpha coefficients of the short measure of social capital at work

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean ± SD</th>
<th>Item-total correlation</th>
<th>Alpha if item is deleted</th>
<th>Alpha of scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Capital at Work</td>
<td>64.96 ± 21.69</td>
<td>0.66</td>
<td>0.86</td>
<td>0.88</td>
</tr>
<tr>
<td>T1</td>
<td>70.70 ± 25.62</td>
<td>0.66</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>66.00 ± 29.34</td>
<td>0.69</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>J1</td>
<td>68.36 ± 27.78</td>
<td>0.79</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>J2</td>
<td>66.13 ± 27.98</td>
<td>0.73</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>57.56 ± 26.14</td>
<td>0.56</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>61.02 ± 27.77</td>
<td>0.68</td>
<td>0.86</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1  Confirmatory factor analysis testing the theoretical construct underlying the short measure of social capital at work

Results

GFI: 0.99, AGFI: 0.98, RMSEA (90% CI): 0.03 (0.00, 0.07), CFI: 0.99, CAIC: 0.08
Results

Ecological data 18 companies

$P = 0.0012$

Figure 2  Relation between aggregate company level social capital at work and sick leave
**Results**

- **Multilevel logistic regression modeling:**
  - **Null model**
    - Intra Class Correlation (ICC) = 10.2% (P < 0.001)
    - the percentage of the total variance in sick leave can be attributed to differences between the companies
Results

- Multilevel logistic regression modeling:
  - Full model

Adjusted for age, gender, marital status, work tenure, education, and income

* $P<0.05$, *** $P<0.001$
Conclusions

- Psychometric findings show the measure of social capital in workplace is a reliable and valid tool for work stress research in China.
- Workplace social capital at both individual- and aggregate- company levels is associated with low risk for sick leave.
Thank you, merci, dank, 谢谢, 谢謝, شكرا, どうもありがとうございます, gracias, dekuji, mahalo, 고맙습니다, köszönöm, תודה!