

Annekatriin Hoppe

Psychosocial working conditions and well-being among immigrant and German low-wage workers

2011 | Journal Article | Accepted Manuscript (Postprint)

available at <https://doi.org/10.18452/23668>

Final version published as:

Annekatriin Hoppe: Psychosocial working conditions and well-being among immigrant and German low-wage workers. In: *Journal of Occupational Health Psychology* 16(2), 2011, pages 187–201. DOI: 10.1037/a0021728

© American Psychological Association, 2011. This paper is not the copy of record and may not exactly replicate the authoritative document published in the APA journal. The final article is available, upon publication, at: <https://doi.org/10.1037/a0021728>



edoc-Server

Open-Access-Publikationsserver
der Humboldt-Universität zu Berlin

Psychosocial Working Conditions and Well-being among Immigrant and German Low Wage
Workers

Annekatriin Hoppe

University of Hamburg

25 August 2010

Author Note

Annekatriin Hoppe, Department of Work and Organizational Psychology, University of Hamburg, Germany.

Annekatriin Hoppe is now at the Department of Work Psychology, Humboldt University zu Berlin, Germany.

I wish to thank Rita Ambrusz for her help with data collection and Cathy Heaney and the two reviewers for their helpful comments on drafts of this article.

This study was part of Annekatriin Hoppe's dissertation.

Correspondence concerning this article should be addressed to Annekatriin Hoppe, Institut für Psychologie, Humboldt University zu Berlin, Rudower Chaussee 18, 12489 Berlin, Germany.

E-mail: annekatriin.hoppe@hu-berlin.de.

Abstract

Despite a steady increase of immigrant workers in Germany in the last decades, occupational health research has only peripherally addressed psychosocial working conditions and immigrant worker well-being. This study has two aims: (1) to investigate differences in psychosocial stressors and resources between immigrant and German low-wage workers, and (2) to examine group differences and their association with well-being using an SEM multiple group analysis approach. Eighty-nine immigrant and 146 German postmen of a German mail service company were surveyed. Results reveal more stressors in the social work environment for the immigrant workers than for their German coworkers but similar levels of task-related stressors in both groups. Stressors are more strongly associated with psychological distress among the German workers. In terms of resources, job control serves as a resource only among German workers, whereas supervisor and coworker support are more important for immigrant workers. These differences suggest that cultural factors, prior work experiences, and expectations influence the worker's experience of psychosocial working conditions and have a direct impact on worker health.

Keywords: immigrant workers, psychosocial stressors and resources, job distress, blue-collar workers.

Psychosocial Working Conditions and Well-being among Immigrant and German Low Wage Workers

Research has shown that psychosocial working conditions have a strong effect on worker health and well-being (e.g., de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Kahn & Byosiere, 1992). However, the experiences of immigrant workers have rarely been studied (see Miller & Travers, 2004; Smith, Johal, & Wadsworth, 2000). Thus, it remains unclear whether the growing body of literature describing health consequences of psychosocial working conditions applies to immigrant workers. For example, Grzywacz, Quandt, and Arcury (2008) found that high psychosocial job demands are not associated with reduced well-being among Latino immigrant workers in the United States. Furthermore, a study comparing immigrant and native workers in Great Britain shows that a higher level of job control is associated with lower levels of job distress among natives, but not among immigrant workers (Wadsworth et al., 2007). Stress theories, such as the job demand control model (Karasek & Theorell, 1990) or action regulation theory (see Frese & Zapf, 1994), have gained widespread acceptance; their empirical basis would be reinforced if their applicability to special populations, such as immigrant workers, were confirmed. This study contributes to the small body of occupational health research among immigrant workers. It examines psychosocial stressors and resources and their relation to worker health and well-being among immigrant workers in Germany, and compares them to German workers in the same jobs.

Immigrant Workers

Germany has experienced an increase in the percentage of immigrants in the overall population from 1.2% in 1961 to 8.7% in 2009 (Bundesamt für Migration und Flüchtlinge, 2009). When considering naturalized immigrants and German resettlers 19.6% of the German

population has an immigrant background. The largest immigrant groups in Germany are the Eastern Europeans (37% of all immigrants), who are predominantly Polish, Serbian, Russian and Croatian immigrants, followed by Turks (19 %), and Southern Europeans (8%), who are predominantly Italian, Greek and Spanish immigrants. The remaining 36% descend from other countries. Immigrants accounted for 17.1 % of the German workforce in 2009. More than two-thirds work in low wage jobs (Statistisches Bundesamt Deutschland, 2009).

There are varying definitions of immigrant, migrant, and ethnic minority workers. Following the definition of EU member states, the term “immigrant worker” is applied to those who work in a country other than their country of origin (European Agency for Safety and Health at Work, 2008b). In this study, immigrant workers are defined as documented first- and second-generation immigrants. First generation immigrants are foreign-born, while second generation immigrants are native-born, but have parents who were born in foreign countries. In Germany, it is common to include both first and second generation immigrants in the definition of immigrants. This is because immigration has a relatively young history and both first and second generation immigrants face similar problems in German society and on the labor market, such as discrimination, more limited access to jobs and resources, and higher unemployment rates as compared to Germans (OECD, 2007).

Conceptual Framework

Figure 1 presents a conceptual framework to guide this research on immigrant worker health. Following the transactional model of stress (Lazarus & Folkman, 1984), a worker responds to stressors of the work environment. The appraisal of these stressors along with coping responses, personal factors, and available resources determine short-term reactions that may, in the long term, cause psychological distress. Following Frese and Zapf (1994) the framework

differentiates between *task-related stressors* which are linked to the task a worker is performing (e.g., time pressure) and *stressors of the social environment* at work which result from social interactions (e.g., conflicts with coworkers). These stressors are influenced by a company's work organization and its work design that are embedded in the *organizational context*.

[INSERT FIGURE 1 ABOUT HERE]

Berry (1997) describes how the larger social and cultural environment can influence immigrants' exposure to these stressors. He argues that the interplay of characteristics of the *society of origin* (e.g., cultural norms or the economic status of an immigrant group) and characteristics of the *society of settlement* (e.g., attitudes towards immigrants) determine the cultural adaptation of an immigrant group and, hence, its *group acculturation*. While immigrants in Germany are a diverse population in terms of their country of origin, there are several factors that unite them. Immigrant workers in Germany emigrated primarily from lower income countries (European Agency for Safety and Health at Work, 2008b). They are likely to be employed in low wage jobs and have low job security (Friedrich-Ebert-Stiftung, 2006). Immigrant workers come from comparatively more collectivist cultures (e.g., Eastern Europe, Turkey) to a more individualistic Western culture (Hofstede, 2000). Their countries of origin have stronger work hierarchies (see e.g., Johnson, Kulesa, Cho, & Shavitt, 2005). Germany's relatively young history of immigration which began in the late 1950s and a late recognition through government and society of it being a country of immigration resulted in little acceptance of immigrant workers and hindered their integration into the German society (Network Migration in Europe, 2005).

Immigrant workers are likely to experience discrimination due to their immigrant status. According to social identity theory (Tajfel & Turner, 1979), which builds on processes related to

group membership and group status, individuals classify themselves and others into permanent categories according to salient characteristics, such as ethnicity. In identifying with one's ethnic group, individuals favor members of their own ethnicity and discriminate against members of other ethnic groups (Hogg & Abrams, 2003). These social processes are likely to shape the social interaction between immigrant and native workers in the workplace where German workers are the more powerful majority group. It ultimately influences the extent to which immigrant workers are exposed to discrimination and exclusion at work. Empirical studies lend support for this theory. For example, Smith, Wadsworth, Shaw, Stanfeld, and Bhui (2005) show higher levels of discrimination towards immigrant workers from low-income countries in Great Britain than towards native workers.

While immigrant workers are expected to experience more stressors in the social environment at work for the reasons described above, we also expect higher levels of task-related stressors. De Castro et al. (2006) point out that low wage immigrant workers in the U.S. are sometimes treated differently by their supervisors than are White workers. They are told to work harder, have shorter lunch breaks, and work more overtime than their coworkers. In addition, immigrant workers are likely to experience value discrepancies and communication problems, augmenting uncertainty regarding how to perform a task or what is expected. It is therefore hypothesized:

Hypothesis 1: Immigrant workers will experience (a) more stressors in the social environment at work and (b) more task-related stressors than their German coworkers.

Personal factors influence the transactional stress process at all stages. A substantial body of literature supports the impact of personal factors, such as socio-demographics (e.g., gender, age, education) and personality traits on the stress process (Cooper & Payne, 1991). Berry (1997)

argues that for immigrant workers, additional factors may come into play, such as their motivation to migrate and their expectations of work, which stem, in part, from the political and economic situation of the society of origin.

Finally, situational resources may impact the worker's exposure to stressors, the stress appraisal, and his or her reaction to perceived stress (e.g., van der Doef & Maes, 1999). Following Frese and Zapf (1994), the model again differentiates between *task-related resources* that are linked to the work task (e.g., job control) and *resources of the social environment* at work (e.g., social support). The social processes of in-group favoritism and out-group discrimination as described above (Hogg & Abrams, 2003) may result in less supervisor and coworker support for immigrant workers. This combined with language barriers may also lead to less job control for immigrant workers. For example, Sundquist, Östergren, Sundquist, and Johansson (2003) reveal lower levels of coworker support for low-skilled immigrant workers in Sweden than for their Swedish counterparts. Rosmond, Lapidus, and Björntorp (1998) found that immigrant workers in different occupations in Sweden had less influence on their work situation when compared to Swedish workers. It was therefore hypothesized:

Hypothesis 2: Immigrant workers will experience (a) fewer social resources and (b) fewer task-related resources than their German coworkers.

The impact of stressors on psychological distress has been repeatedly demonstrated (e.g., Dormann & Zapf, 2002; van der Doef & Maes, 1999). In terms of resources, job control has been linked frequently to decreased job distress and improved worker well-being (e.g., de Lange, et al., 2003). Similarly, substantial literature on social support has shown a negative effect of workplace support on worker psychological distress (e.g., Heaney et al., 1993; House, 1981). As shown in Figure 1 these resources may either directly affect worker psychological distress or

indirectly buffer the relationship between stressors and psychological distress (van der Doef & Maes, 1999).

De Jonge and Dormann (2006) argue that resources are more likely to buffer the relationship between stressors and psychological distress if they address similar components of the work environment. For example, they suggest matching cognitive stressors that pose cognitive demands on the brain processing with cognitive resources, such as control at work. Following this rationale, in this study, cognitive stressors (i.e., uncertainty and time pressure) are matched with the cognitive resource job control (see also Frese & Zapf, 1994 for an action theory based definition of time pressure, uncertainty and job control as cognitive stressors/resources). Social support, as measured in this study, has an emotional, cognitive-informational and instrumental component and is therefore treated as a universal moderator that cannot be matched to specific stressors.

The existing literature does not provide a rationale or empirical basis for expecting differences between immigrant and native workers in the impact of stressors and resources on psychological distress. Hence, it is hypothesized:

Hypothesis 3: Stressors are positively associated with psychological distress among immigrant and German workers.

Hypothesis 4: Job control is (a) negatively associated with psychological distress and/or (b) buffers the relationship between cognitive stressors and psychological distress.

Hypothesis 5: Social support is (a) negatively associated with psychological distress and/or (b) buffers the relationship between stressors and psychological distress.

Based on Hypotheses 1 and 2, which postulate more stressors and fewer resources for immigrant workers, it is proposed that:

Hypothesis 6: Immigrant workers will experience more psychological distress than their German coworkers.

Study Background

The studies cited above compared immigrant and native workers across occupations or in different tasks. As immigrant workers are more likely than their native counterparts to be employed in low wage jobs with poor labor conditions (European Agency for Safety and Health at Work, 2008a) it remains unclear whether these differences in psychosocial working conditions such as lower levels of job control or less social support stem from being an immigrant, from specific occupational characteristics, or both. To enhance comparability between immigrant and native workers, this study investigates psychosocial working conditions and psychological distress among immigrant and German workers in the same jobs.

In Germany, immigrant workers account for 9% of the workforce in the transportation industry, and a total of 31,000 immigrants work as postmen (Statistisches Bundesamt Deutschland, 2005). The workers included in this study were immigrant and German postmen in a major German city. They all received minimum wage and had low job security due to short-term contracts.

Method

Sample and Procedure

The study sample includes 235 employees from a mail service company. Study participants worked in 20 teams in various districts of the city. Each team had one supervisor. All workers (1) sorted their mail for up to one hour in the morning and (2) subsequently distributed it by bicycle during the day. Job observations were conducted in two teams. We observed 35 postmen sorting their mail and followed four postmen on an entire shift by bicycle. The jobs

involved moderate physical activity as the entire route was covered by bicycle. However, no routes were particularly challenging as the city is flat and distances between houses are small. Postmen had some interaction with customers, for example when needing a signature for registered letters. The job observations revealed that immigrant and German workers were performing equivalent tasks and were equally equipped with bicycles, bags and raincoats. Physical demands were similar for both groups of workers. The only difference between workers lay in the routes to which they were assigned: Some routes were in higher SES areas of the city while others were in lower SES areas. Low and high SES areas were equally distributed among immigrant and German postmen.

All 20 teams participated in the study. Workers who had worked for the company for at least 2 weeks were invited to participate. Members of the research team distributed questionnaires to 300 workers, of which approximately 40% were immigrants. Workers completed a self-administered questionnaire in the language of their choice. Eleven immigrant workers chose a questionnaire in a language other than German. They were also given the option of having the questionnaire, or parts of it, read to them. Twelve workers chose this option. The workers partially completed the questionnaires at the work site after sorting their mail. About half of the workers chose to take the questionnaire home and return it the following week.

Of the 245 surveys returned (response rate = 82%), 10 questionnaires had to be excluded from analysis as respondents chose not to specify their or their parents' nationality. Workers who indicated that they and their parents were foreign-born were classified as first-generation immigrant workers. Those who indicated that they were born in Germany, but that their parents were foreign-born, were classified as second-generation immigrant workers. Workers who had selected the German nationality in all categories and indicated that they were born in Germany

were classified as German workers. The final sample of this study includes 89 immigrant workers (74 first-generation and 15 second-generation immigrants) and 146 German workers. The mean age of workers was 36 years. They had worked for the company for 10.5 months on average.

Immigrant workers were mainly from Turkey and the Middle East (38%), Eastern Europe (19%), Southern Europe (19%), and Africa (15%). First-generation immigrant workers had lived in Germany, on average, for 15 years. First- and second-generation immigrant workers did not differ on any socio-demographic variables. The immigrant sample consisted of significantly more men (80%) than the German sample (54%) ($\chi^2(1, 232) = 16.00; p < .001$) and had more years of schooling ($M = 12$ years, $SD = 1.66$) than the German sample ($M = 11$ years, $SD = 2.71$) ($F(1, 230) = 3.08; p < .01$). Thus, gender and education are controlled for in all analyses comparing immigrant and German workers.

Measures

Informed by job observations, seven scales measuring psychosocial working conditions were selected from previously validated job analysis instruments. As job observations revealed no differences in physical demands between immigrant and German workers, they were not included in the survey. In a pilot study, the German questionnaire was pretested in ten qualitative interviews with immigrant workers to evaluate their linguistic and cross-cultural comprehensibility. Immigrants were asked to point to words and expressions that were difficult to understand. In an iterative process, items were linguistically simplified throughout the course of the interviews. The revised scales were piloted with a sample of 222 German and 226 immigrant workers of different nationalities and in various jobs revealing good reliability and validity for all scales (Hoppe, in press). To ensure that items were suitable for assessing the

working conditions of the postmen in this study, interviews with two German and two immigrant postmen were conducted. The final questionnaire was translated into Turkish, Russian, Polish, French and English and back-translated into German by native speakers.

Psychosocial working conditions. Task-related stressors and resources were measured with three linguistically simplified and adapted scales of the *German Instrument for Stress-related Job Analysis* (ISTA, Semmer, Zapf, & Dunckel, 1999): A three-item time pressure scale measuring the extent to which workers need to work fast or longer than their regular hours, a four-item uncertainty scale assessing the extent to which tasks or responsibilities are unclear, and a six-item job control scale measuring the extent to which workers could decide over how and when to perform their tasks. Workers were asked to report the extent to which they were exposed to certain stressors or resources, rather than asking them how they perceived problematic aspects of their work environment. Confirmatory factor analysis (CFA) reveals a good fit for a three-factor model ($\chi^2(62, N = 235) = 99.87, p < .05, CFI = .94, RMSEA = .05 (.03 - .07)$).

Stressors of the social environment at work were measured using a four-item social stressors scale and a three-item customer stressors scale. For social stressors, a linguistically simplified version of the German social stressors scale by Frese and Zapf (1987) was used that assesses conflicts and daily hassles with coworkers and supervisors. Customer stressors were assessed with the validated customer verbal aggression subscale of the customer-related social stressor scale by Dormann and Zapf (2004). Social resources were assessed with two three-item scales on supervisor and coworker support with a linguistically simplified version of the German social support scales by Frese (1999). The scales follow House's (1981) conceptualization of emotional and instrumental social support. The CFA reveals a good fit for a four-factor model ($\chi^2(56, N = 235) = 88.23, p = .12, CFI = .97, RMSEA = .05 (.03 - .07)$).

Psychological distress. Components of psychological distress were measured with the irritation scale by Mohr, Müller, Rigotti, Aycan, and Tschan (2006). This scale assesses with seven items short-term effects of job stress on the workers' subjectively perceived emotional and cognitive job strain. Long-term effects of job stress on mental well-being were measured using nine items of the original twenty-item psychosomatic complaints scale by Mohr and Müller (2005). Respondents rated how often they experienced psychosomatic symptoms such as headache or fatigue. Cronbach alphas for all scales appear in Table 1.

Results

Means, standards deviations, and zero order correlations are presented separately for immigrant and German workers in Table 1.

[INSERT TABLE 1 ABOUT HERE]

Group Differences in Psychosocial Working Conditions and Psychological Distress

ANCOVAs on task-related stressors and resources controlling for gender and education revealed no differences between immigrant and German workers. With regard to stressors of the social environment at work, immigrant workers experienced more social stressors ($F(1,221) = 4.00, p < .05, \eta^2 = .018$) and more customer stressors ($F(1,190) = 4.01, p < .05, \eta^2 = .021$) than their German coworkers (see also Table 1). Accordingly, only Hypothesis 1a is supported. ANCOVAs revealed no differences between immigrant and German workers in resources of the social environment at work, that is, supervisor and coworker support. Therefore, Hypothesis 2 is rejected. Finally, no differences were found between immigrant and German workers' levels of job distress and psychosomatic complaints. Hence, Hypothesis 6 is rejected.

Group Differences in the Association of Psychosocial Working Conditions with Psychological Distress

In order to investigate differences in associations of psychosocial working conditions with psychological distress among immigrant and German workers, structural equation models were fit separately for both groups. The first model, Figure 2, includes all task-related scales and the control variables as manifest variables and psychological distress as a latent variable that is explained by the two manifest variables job distress and psychosomatic complaints. For the immigrant workers ($\chi^2(11, N = 89) = 14.25, p = .28, CFI = .94, RMSEA = .06 (.01 - .13)$) and the German workers ($\chi^2(11, N = 146) = 11.35, p = .44, CFI = .99, RMSEA = .02 (.01 - .09)$) the models show a satisfactory fit.

[INSERT FIGURE 2 ABOUT HERE]

Next, structural equation models including all variables of the social environment at work and the control variables as manifest variables and psychological distress as a latent variable were fit separately for both groups (see Figure 3). Again, for the immigrant workers ($\chi^2(14, N = 89) = 19.60, p = .24, CFI = .94, RMSEA = .07 (.01 - .13)$) and for the German workers ($\chi^2(14, N = 146) = 21.00, p = .13, CFI = .96, RMSEA = .06 (.01 - .11)$) the model fit is satisfactory.

[INSERT FIGURE 3 ABOUT HERE]

Figures 2 and 3 show the standardized regression weights for each psychosocial working condition on psychological distress. For German workers all stressors show significant positive associations with psychological distress ($\beta = .21, p < .05$ to $\beta = .44, p < .001$). For immigrant workers only the task-related stressors, time pressure ($\beta = .39, p < .01$) and uncertainty ($\beta = .32, p < .05$) have significant regression weights. Stressors of the social environment at work were not associated with psychological distress. Thus, Hypothesis 3 is supported only for the German sample.

In terms of resources, job control is significantly negatively associated with psychological distress only for German workers ($\beta = -.23, p < .05$). Therefore, Hypothesis 4a is supported only for German workers. Supervisor ($\beta = -.38, p < .05$) and coworker support ($\beta = .40, p < .05$) have significant regression weights on psychological distress only among immigrant workers. The lack of significant associations among German workers and an unexpected positive correlation of coworker support with psychological distress among immigrant workers lead to the rejection of Hypothesis 5a.

Interestingly, when looking into the bivariate correlations in Table 1, coworker support does not show positive relationships with job distress and psychosomatic complaints for the immigrant subgroup. However, it is highly correlated with supervisor support ($r = .62, p < .01$). Also, the regression weight of supervisor support on psychological distress in the SEM model exceeds its bivariate correlations with job distress and psychosomatic complaints. When deleting supervisor support from the SEM model, we lose the significant regression weight of coworker support. Likewise, when deleting coworker support from the model, we lose the significant regression weight of supervisor support with psychological distress. The high intercorrelation between coworker and supervisor support and their regression weights in the SEM model that exceed the bivariate correlations with the outcome variables point to a reciprocal suppressor effect, i.e., the two variables mutually suppress irrelevant variance within each other (Lancaster, 1999).

Multiple group analysis. A multiple group analysis was conducted to explore whether these visually different coefficients for immigrant and German workers were statistically significant. For the task-related and the social environment at work model, first, a constrained model with equal factor loadings was tested against the unconstrained model shown in Figures 2

and 3. Second, a constrained model with equal regression weights was tested against the equal factor loadings model (Arbuckle, 2006). With this approach, constraints impose identical estimates on the model's path coefficients for both groups and equivalence among samples is evaluated. Table 2 presents the model fit indices and statistical tests for parameter constraints in the multiple group analyses.

[INSERT TABLE 2 ABOUT HERE]

For the task-related models the invariance test for the equal factor loadings model ($\Delta\chi^2 = 2.01, \Delta df = 1, p = .16$) and the equal regression weights model ($\Delta\chi^2 = 2.63, \Delta df = 5, p = .76$) show no significant differences when compared to the less constrained model. That is, the immigrant and German models differ neither in how the latent variable psychological distress is explained by job distress and psychosomatic complaints nor in the associations of task-related variables with psychological distress.

For the social environment at work models, the invariance test for the equal factor loadings model ($\Delta\chi^2 = 0.32, \Delta df = 1, p = .57$) does not differ from the unconstrained model, illustrating that factor loadings are similar among both groups. The invariance test for the equal regression weights model is significant when tested against the equal factor loadings model ($\Delta\chi^2 = 13.21, \Delta df = 6, p < .04$), that is, associations of social variables with psychological distress differ significantly between immigrant and German workers.

A test of critical ratios allowed comparing the single regression weights of immigrant and German workers in the equal regression weights models. With a critical ratio (C.R.) over ± 1.96 the positive associations of social stressors (C.R. = $-2.21, p < .05$) and customer stressors (C.R. = $-2.23, p < .05$) with psychological distress are significantly stronger among German workers compared to immigrant workers.

Moderation Effects¹

Moderated regressions on job distress and psychosomatic complaints controlling for gender and education were run to assess the extent to which resources buffer the association of stressors with psychological distress as proposed in Hypotheses 4b and 5b (Stone & Hollenbeck, 1984).

Moderated regressions with job control.

Immigrant workers. Job control did not buffer the relationship between task-related stressors (i.e., time pressure and uncertainty) with job distress and psychosomatic complaints for immigrant workers.

German workers. Figure 4 shows that a high level of job control significantly buffers the positive association of uncertainty with psychosomatic complaints among German workers (uncertainty x job control on psychosomatic complaints: $\Delta R^2 = .02$, $\beta = -.16$, $p < .05$). The chow test for comparing regression coefficients (Chow, 1960) revealed significant differences between the regression weights of immigrant and German workers in this model ($F(5, 211) = 2.81$, $p < .05$). Furthermore, we found a trend for a buffering effect of job control on the association of time pressure with psychosomatic complaints (time pressure x job control on psychosomatic complaints: $\Delta R^2 = .02$, $\beta = -.16$, $p < .10$).

[INSERT FIGURE 4 ABOUT HERE]

Moderated regressions with social support.

Immigrant workers. Figure 5a shows that supervisor support buffered the positive association of time pressure with job distress among immigrant workers (time pressure x

¹ Only significant results on moderated regressions are presented due to limited space. A table showing results for all moderated regressions is available from the author upon request.

supervisor support on job distress: $\Delta R^2 = .06, \beta = -.24, p < .05$): For those workers with low levels of supervisor support, time pressure was associated with more job distress. For those with high levels of social support, time pressure was associated with lower job distress. Figure 5b shows that coworker support significantly buffered the association of uncertainty with psychosomatic complaints among immigrant workers (uncertainty x coworker support on psychosomatic complaints: $\Delta R^2 = .06, \beta = -.28, p < .05$). In addition, there was a trend for coworker support to buffer the association of time pressure with job distress in the expected direction among immigrant workers (time pressure x coworker support on job strain: $\Delta R^2 = .05, \beta = -.23, p < .10$).

German workers. For German workers no buffer effects of supervisor and coworker support on stressors were found. The chow test revealed no significant differences between the regression models of immigrant and German workers. While the two significant buffering effects and one trend clearly point to an important function of social support as a resource for immigrant workers, the visual differences between immigrant and German workers in Figure 5 need to be interpreted with caution.

[INSERT FIGURE 5 ABOUT HERE]

The results of the moderated regressions give limited support for Hypotheses 4b and 5b. For German workers there is some evidence that job control serves as a buffer for the relationship between cognitive stressors with psychological distress (Hypothesis 4b). For immigrant workers there is some evidence for a buffering function of supervisor and coworker support (Hypothesis 5b).

Discussion

Group Differences in Psychosocial Working Conditions and Psychological Distress

The first aim of this study was to examine whether immigrant workers experienced more stressors, fewer resources and poorer well-being than their German coworkers. Against expectations, no group differences in task-related stressors and resources were found. Previous studies of immigrant populations in Scandinavia and Great Britain suggest that immigrant workers have less influence at work in terms of decision latitude (Rosmond, et al., 1998) and opportunities to discuss wages (Akhavan, Bildt, & Wamala, 2007). However, as pointed out above, these studies have compared immigrant and native workers across occupations. Therefore, the differences in job control could have resulted from immigrant workers being employed in jobs that offer less job control rather than from factors related to being an immigrant.

As expected, the immigrant workers of this study revealed more stressors in the social environment at work in terms of social stressors and customer stressors. These findings support previous studies of immigrant and minority workers. For example, Simich et al. (2003) found that immigrant workers in Great Britain felt more excluded from the team than their native coworkers. In a study with minority employees in the United States, Morris (1996) found more negative social interactions for African American and Latino minority workers than for their White counterparts. Studies have also revealed less coworker and supervisor support for immigrant workers (e.g., Golding & Baezconde-Garbanati, 1990), though this was not found in the present study.

It was hypothesized that immigrant workers would experience poorer well-being as a result of more stressors and fewer resources at work. Even though immigrant workers in this study reported more stressors in the social work environment than did German workers, they did

not report poorer well-being. These unexpected results are likely to reflect group differences in the evaluation of stressors that are being discussed in the following.

Group differences in the association of psychosocial working conditions with psychological distress

The second aim of this study was to investigate differences between immigrant and German workers in the association between psychosocial working conditions and psychological distress.

Task-related stressors and resources. The unconstrained structural equation model for task-related stressors and resources revealed significant associations of time pressure and uncertainty with psychological distress for both groups. However, job control was negatively associated with psychological distress only among German workers. Also in the moderated regressions, job control showed moderator effects only for German workers.

It has been theoretically stated that job control reduces job strain, either directly or by buffering the relationship between stressors and well-being (Karasek & Theorell, 1990). While empirical studies by and large support the direct effects of job control on well-being, they only show moderate support for a buffering effect (see van der Doef & Maes, 1999 for a review). The review article from van der Doef and Maes also suggests that certain subpopulations are likely to benefit from job control more than others. Given these previous findings the moderate support for buffering effects of job control among German workers and differences between the immigrant and German subgroup are not too surprising. Yet, the absence of both, direct and indirect effects among the immigrant sample is in line with previous research and raises questions on the function of job control for immigrant worker populations. As mentioned above, Wadsworth et al. (2007) found a positive effect of job control only among natives but not among

immigrant workers in Great Britain. Similarly, Rosmond et al. (1998) found a positive effect of job control on worker well-being only among Swedes but not among immigrant workers in Sweden. In countries with stronger work hierarchies, such as Russia, Poland, or Turkey (cf. Johnson, et al., 2005), workers are constantly exposed to low levels of job control. Having had little decision latitude in the past may result in workers from these countries not perceiving job control as a resource when working in Germany. De Rijk, Le Blanc, Schaufeli, and de Jonge (1999) argue that job control can only buffer stressors if workers are able to use this resource efficiently; that is, if workers have active coping strategies available and feel a need for job control. These preliminary findings leave some room to question the positive function of job control as a resource among immigrant workers. However, they need to be verified in future studies.

Stressors and resources of the social environment at work. Multiple group analysis revealed that stressors and resources of the social environment at work were not equally related to psychological distress among immigrant and German workers. Stressors of the social environment at work were associated with psychological distress only among the German workers, whereas supervisor support was associated with psychological distress only among the immigrant workers. The moderated regressions revealed some buffer effects of supervisor and coworker support only for the immigrant workers.

Different expectations between immigrant and German workers may explain these differential patterns of associations of stressors and resources of the social work environment with psychological distress. The majority of the immigrant workers participating in this study had a Russian, Polish, or Turkish background. In these countries, work hierarchies are stronger and the supervisor's role is more distant than is the case in Germany (Johnson, et al., 2005).

Hence, workers from these countries may experience conflicts with their supervisor or unfair treatment – as measured with the social stressors scale – as less threatening because they have been more exposed to this behavior in their home country. A Russian worker explained in a post-hoc interview that he does not experience it as stressful if the supervisor blames him for mistakes for which he is not responsible as this is how he was treated in Russia. Furthermore, immigrant workers are more likely to be exposed to social stressors in their daily lives due to their immigrant status. Over time, they may have accustomed themselves to these stressors and, thus, evaluate them as less menacing in the work setting.

Similarly, social support from the supervisor in terms of helping out or listening to work-related or private problems may be evaluated more positively by immigrant workers as they are not used to or do not expect this behavior. Consequently, a similar level of supervisor support in both groups may have a greater effect on psychological distress among immigrant workers.

Coworker support showed an unexpected positive association with psychological distress among immigrant workers in the path models. This positive effect only appears with supervisor support in the model and is a result of the high inter-correlation of both variables. As both scales have similar items and the same response format, this may reflect a measurement artifact that levels out the correlations of both variables with the outcome variables in the bivariate correlations. The cross-sectional nature of this study does not allow drawing conclusions on the causality of effects. Yet, some post hoc explanations are offered at this point to discuss the positive association of coworker support with psychological distress: Eventually, immigrant workers are more likely to seek help among coworkers when experiencing job distress or psychosomatic complaints. The more collectivistic value orientation among immigrants from Eastern Europe, Turkey or Southern Europe (e.g., Erdogan & Liden, 2006; Vadi & Vereshagin,

2006) as compared to an individualistic value orientation among Germans (e.g., Hofstede, 2000) may result in immigrant workers seeking and benefiting from coworker support more easily than German workers. Literature on coping styles reveals that individuals from collectivistic countries are more likely to engage in emotional coping strategies, such as looking for emotional support, than individuals from individualistic countries, who engage more in active coping strategies (O'Connor & Shimizu, 2002). These different preferences in coping styles might also explain why job control is less likely to work as a resource for immigrant workers (see above).

While this post-hoc explanation for the relationship between social support and psychological distress among immigrant workers may hold true, it should be noted that the lack of such a relationship among the German workers is the most surprising finding. Several recent European studies comparing the stress processes in white collar and blue collar workers found that social support was protective against ill health in both categories of workers (see e.g., Rose et al., 2006; Rydstedt, Devereux, & Sverke, 2007). Further studies are needed to see if the findings from the current study are replicable.

Strengths and Limitations

In reflecting on the findings of this study, it is important to recognize some limitations. First, the use of self-reports may have inflated the results due to common method variance. Moreover, we know from cross-cultural research that cultural differences in self-reports of health conditions may, in part, result from differences in question interpretation or response styles (Owens, Timothy, & O'Rourke, 2000). For example, Johnson et al. (2005) state that respondents from higher power distance countries (e.g., Poland or Turkey) are more likely to choose extreme responses than respondents from lower power distance countries (e.g., Germany). Culture may also influence the interpretation of items and, thus, lead to differential item functioning between

the cultural groups (Azocar, Areán, Miranda, & Muñoz, 2001). With regard to common method variance it can be argued that the differential pattern of relationships across the two groups indicate that the use of self-report is not a major limitation. Furthermore, if common method variance was largely responsible for the relationship among the variables, the one-factor CFA models should have fit the data well. Finally, Crampton and Wagner (1994) state that criticism of the use of self-report has been overstated. Nevertheless, to gain more insight on differences in expectations between immigrant and native workers, observational approaches for measuring psychosocial working conditions in addition to self-report measures would be beneficial.

A second shortcoming of this study is the small and very specific sample composed of postmen from one company. This sample may show different relationships between the major study variables more than would be the case with a different group of workers and a different composition of the immigrant sample. As this study was the first to address differences in psychosocial working conditions among immigrant and German workers, it seems reasonable to explore psychosocial working conditions and their relation to well-being among a smaller, more specific sample as a first step. However, further research is necessary to investigate the generalizability of these findings to other work settings.

Third, only a cross-sectional design was applied, which did not allow drawing causal inferences from the data.

Finally, we know from previous research that immigrants are more hesitant to participate in surveys due to language barriers and fear of negative consequences to themselves (Owens, et al., 2000). This may have caused a selective dropout of workers in the immigrant sample. However, immigrant participants in this study had the option of completing the questionnaire in five languages, or having the German version read to them, ensuring that even respondents with

insufficient language skills and low literacy could participate. The high response rate suggests a representative sample.

Along with these limitations, this study has major strengths. Job observations revealed that immigrant and German workers were performing equivalent tasks. By comparing immigrant and German workers in the same jobs, differences can be attributed clearly to being immigrant or German instead of occupational characteristics. With this approach, the study addressed a major limitation of previous research. Furthermore, by focusing on task-related stressors and resources, this study addressed aspects of work, such as job control, that have not received much attention in previous studies on immigrant workers.

Conclusions

This study expands the small body of research on occupational health among immigrant workers. It addresses a new and growing field of research that clearly requires more attention given the increasing diversity of workforces worldwide. The results suggest further investigating the relationship between job expectations, the exposure to and experience of psychosocial working conditions, and their causal effects on immigrant worker well-being. In this context, the role of job control among immigrant populations requires further attention. Future studies should also address subgroup differences with a larger sample. The results suggest that health promotion programs need to focus on group specific resources if they want to meet the needs of both immigrant and German workers. The findings of this study suggest that workplace interventions need to focus primarily on developing resources of the social environment at work to foster well-being among immigrant workers. Through workplace health promotion programs, the workplace may also serve as a gateway to reach this generally underserved population, which often lacks access to existing health and social services.

References

- Akhavan, S., Bildt, C., & Wamala, S. (2007). Work-related health factors for female immigrants in Sweden. *Work, Employment and Society*, 28(2), 135-143.
- Arbuckle, J. L. (2006). *Amos 7.0 User's Guide*. Spring House, PA: Amos development corporation.
- Azocar, F., Areán, P., Miranda, J., & Muñoz, R. F. (2001). Differential item functioning in a Spanish translation of the Beck Depression Inventory. *Journal of Clinical Psychology*, 57(3), 355-365.
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, 46, 5-34.
- Bundesamt für Migration und Flüchtlinge. (2009). Ausländerzahlen 2009. Retrieved from www.bamf.de
- Chow, G. C. (1960). Tests of equality between sets of coefficients in two linear regressions. *Econometrica*, 28, 591-605.
- Cooper, C. L., & Payne, R. (Eds.). (1991). *Personality and stress: Individual differences in the stress process*. Oxford: John Wiley & Sons.
- Crampton, S. M., & Wagner, J. A. (1994). Percept-percept inflation in micro organizational research: An investigation of prevalence and effect. *Journal of Applied Psychology*, 79(1), 67-76.
- de Castro, A. B., Fujishiro, K., Schweitzer, E., & Oliva, J. (2006). How immigrant workers experience workplace problems: A qualitative study. *Archives of Occupational and Environmental Health*(61), 249-258.

- de Jonge, J., & Dormann, C. (2006). Stressors, resources, and strain at work: a longitudinal test of the triple-match principle. *Journal of Applied Psychology, 91*(6), 1359-1374.
- de Lange, A. H., Taris, T. W., Kompier, M. A., Houtman, I. L., & Bongers, P. M. (2003). The very best of the millennium: Longitudinal research and the demand-control-(support) model. *Journal of Occupational Health Psychology, 8*(4), 282-305.
- de Rijk, A. E., Le Blanc, P. M., Schaufeli, W. B., & de Jonge, J. (1999). Active coping and the need for control as moderators of the job demand-control model: Effects on burnout. *Journal of Occupational and Organizational Psychology, 71*, 1-18.
- Dormann, C., & Zapf, D. (2002). Social stressors at work, irritation, and depressive symptoms: Accounting for unmeasured third variables in a multi-wave study. *Journal of Occupational and Organizational Psychology, 75*, 33-58.
- Dormann, C., & Zapf, D. (2004). Customer-related social stressors and burnout. *Journal of Occupational Health Psychology, 9*(1), 61-82.
- Erdogan, B., & Liden, R. C. (2006). Collectivism as a moderator of responses to organizational justice: Implications for leader-member exchange and ingratiation. *Journal of Occupational Behavior, 27*, 1-17.
- European Agency for Safety and Health at Work. (2008a). European Risk Observatory: Many of Europe's migrant workers face poor safety and health conditions. Retrieved November 3, 2008, from <http://osha.europa.eu>
- European Agency for Safety and Health at Work. (2008b). *Literature study on migrant workers*. Bilbao, Spain: European Agency for Safety and Health at Work.

- Frese, M. (1999). Social support as a moderator of the relationship between work stress and psychological dysfunctioning: A longitudinal study with objective measures. *Journal of Occupational Health Psychology, 4*(3), 179-192.
- Frese, M., & Zapf, D. (1987). Eine Skala zur Erfassung von sozialen Stressoren am Arbeitsplatz. *Zeitschrift für Arbeitswissenschaft, 3*, 134-141.
- Frese, M., & Zapf, D. (1994). Action at the core of work psychology: A German approach. In H. C. Triandis, M. D. Dunette & L. M. Rough (Eds.), *Handbook of Industrial and Organizational Psychology* (Vol. 4, pp. 271-340). Palo Alto: Consulting Psychologists Press.
- Friedrich-Ebert-Stiftung (Ed.). (2006). *Prekäre Arbeit*. Bonn: bub.
- Golding, J. M., & Baezconde-Garbanati, L. A. (1990). Ethnicity, culture, and social resources. *American Journal of Community Psychology, 18*(3), 465-486.
- Grzywacz, J. G., Quandt, S. A., & Arcury, T. A. (2008). Immigrant farmworkers' health related quality of life: An application of the job demands-control model. *Journal of Agricultural Safety and Health, 14*, 79-92.
- Heaney, C. A., Israel, B. A., Schurman, S. J., Baker, E. A., House, J. S., & Hugentobler, M. (1993). Industrial relations, worksite stress reduction, and employee well-being. A participatory action research investigation. *Journal of Organizational Behavior, 14*, 495-510.
- Hofstede, G. (2000). *Culture's consequences: International differences in work-related values*. Newbury Park, CA: Sage Publications.
- Hogg, M. A., & Abrams, D. (2003). Intergroup behavior and social identity. In M. A. Hogg & J. Cooper (Eds.), *The Sage Handbook of Social Psychology* (pp. 407-431). London: Sage.

- Hoppe, A. (in press). Stressbezogene Arbeitsanalyse bei kultureller Diversität: Entwicklung eines Screeninginstruments für interkulturelle Belegschaften in un- und angelernten Berufen. *Zeitschrift für Arbeits- und Organisationspsychologie*.
- House, J. S. (1981). *Work stress and social support*. Reading, MA: Addison-Wesley.
- Johnson, T., Kulesa, P., Cho, Y., & Shavitt, S. (2005). The relation between culture and response styles: Evidence from 19 countries. *Journal of Cross-Cultural Psychology, 36*(2), 264-277.
- Kahn, R. L., & Byosiere, P. (1992). Stress in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2 ed., Vol. 3, pp. 571-650). Palo Alto, CA: Consulting Psychologists Press.
- Karasek, R. A., & Theorell, T. (1990). *Healthy work: stress, productivity. and the reconstruction of working life*. New York: Basic Books.
- Lancaster, B. (1999). *Defining and interpreting suppressor effects: Advantages and limitations*. Paper presented at the Annual Meeting of the Southwest Educational Research Association.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Miller, G., & Travers, C. J. (2004). The relationship between ethnicity and work stress. In A. S. Antoniou & C. L. Cooper (Eds.), *Research companion to organizational health psychology*, (pp. 87-101). Cheltenham: Edward Elgar Publishing Ltd.
- Mohr, G., & Müller, A. (2005). Psychosomatische Beschwerden im nichtklinischen Kontext. In A. Glöckner-Rist (Ed.), *ZUMA-Informationssystem. Elektronisches Handbuch sozialwissenschaftlicher Erhebungsinstrumente* (Vol. ZIS 8.00). Mannheim: Zentrum für Umfragen, Methoden und Analysen.

- Mohr, G., Müller, A., Rigotti, T., Aycan, Z., & Tschan, F. (2006). The assessment of psychological strain in work contexts: Concerning the structural equivalency of nine language adaptations of the irritation scale. *European Journal of Psychological Assessment, 22*(3), 198-206.
- Morris, A. (1996). Gender and ethnic differences in social constraints among a sample of New York City police officers. *Journal of Occupational Health Psychology, 1*(2), 224-235.
- Network Migration in Europe. (2005). Deutschland: Studie dokumentiert hohe Ausländerfeindlichkeit [Xenophobia in Germany]. *Migration und Bevölkerung, 7*. Retrieved from www.migration-info.de
- O'Connor, D., & Shimizu, M. (2002). Sense of personal control, stress and coping style: A cross-cultural study. *Stress and Health, 18*(4), 173-183.
- OECD. (2007). *Jobs for immigrants: Labour market integration in Australia, Germany, Denmark, and Sweden* (Vol. 1). Paris: OECD.
- Owens, L., Timothy, P. J., & O'Rourke, D. (2000). *Culture and item nonresponse in health surveys*. Paper presented at the CDC Health Survey Research Conference.
- Rose, G., Kumlin, L., Dimberg, L., Bengtsson, C., Orth-Gomer, K., & Cai, X. (2006). Work-related life events, psychological well-being and cardiovascular risk factors in male Swedish automotive workers. *Occupational Medicine, 56*(6), 386-392.
- Rosmond, R., Lapidus, L., & Björntorp, P. (1998). A cross-sectional study of self-reported work conditions and psychiatric health in native Swedes and immigrants. *Occupational Medicine, 48*(5), 309-314.

- Rydstedt, L. W., Devereux, J., & Sverke, M. (2007). Comparing and combining the demand-control-support model and the effort reward imbalance model to predict long-term mental strain. *European Journal of Work and Organizational Psychology, 16*(3), 261-278.
- Semmer, N., Zapf, D., & Dunckel, H. (1999). Instrument zur Stressbezogenen Tätigkeitsanalyse (ISTA). In H. Dunckel (Ed.), *Handbuch psychologischer Arbeitsanalyseverfahren* (Vol. 14, pp. 179-204). Zürich: vdf.
- Simich, L., Beiser, M., & Mawani, F. N. (2003). Social support and the significance of shared experience in refugee migration and resettlement. *Western Journal of Nursing Research, 27*, 872-891.
- Smith, A., Johal, S., & Wadsworth, E. (2000). *The scale and impact of occupational stress: The Bristol stress and health at work study*. London: Cardiff University.
- Smith, A., Wadsworth, E., Shaw, C., Stanfeld, S., & Bhui, K. (2005). *Ethnicity, work characteristics, stress and health*. Cardiff: Cardiff University.
- Statistisches Bundesamt Deutschland. (2005). Mikrozensus 2005. Retrieved May 5, 2008, from www.destatis.de
- Statistisches Bundesamt Deutschland. (2009). Mikrozensus 2009. Retrieved July 14, 2010, from www.destatis.de
- Stone, E. F., & Hollenbeck, J. R. (1984). Some issues associated with the use of moderated regression. *Organizational Behavior and Human Performance, 34*, 195-213.
- Sundquist, J., Östergren, P. O., Sundquist, K., & Johansson, S. E. (2003). Psychosocial working conditions and self-reported long-term illness: A population-based study of Swedish-born and foreign-born employed persons. *Ethnicity & Health, 8*(4), 307-317.

- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-48).
Monterey, CA: Brooks/Cole.
- Vadi, M., & Vereshagin, M. (2006). The deposit of collectivism in organizational culture in Russia: Some consequences of human resources management. *Baltic Journal of Management, 1*(2), 188 - 200.
- van der Doef, M., & Maes, S. (1999). The job demand-control(-support) model and psychosocial well-being: A review of 20 years of empirical research. *Work & Stress, 2*(2), 87-114.
- Wadsworth, E., Dhillon, K., Shaw, C., Bhui, K., Stanfeld, S., & Smith, A. (2007). Racial discrimination, ethnicity and work stress. *Occupational Medicine, 57*, 18-24.

Table 1

Means, Standard Deviations, and Zero Order Correlations

Variables	Immigrant workers <i>M (SD)</i>	German workers <i>M (SD)</i>	1	2	3	4	5	6	7	8	9
1. Time pressure ¹	3.05 (.97)	2.91 (.87)	(.75)	.36**	.30**	.19*	-.13	.08	-.12	.20*	.30**
2. Uncertainty ¹	1.94 (.68)	1.93 (.64)	.12	(.67)	.49**	.12	.10	.05	-.16	.28**	.25**
3. Social stressors ^{2,a}	1.58 (.65)	1.34 (.43)	.30**	.30**	(.73)	.09	-.09	-.23*	-.31**	.31**	.25*
4. Customerstressors ^{2,a}	1.93 (.94)	1.69 (.71)	.04	.06	.16	(.74)	-.03	.02	.14	.21*	.12
5. Job control ¹	2.76 (.82)	3.00 (.77)	-.13	-.13	-.19	-.02	(.72)	.17*	.19*	-.17*	-.16
6. Coworker support ²	2.76 (.73)	2.98 (.69)	-.15	.08	-.18	-.08	.12	(.78)	.49**	-.14	-.02
7. Supervisor support ²	2.80 (.87)	2.98 (.82)	-.18	-.12	-.33**	-.22	.28*	.62**	(.81)	-.06	-.02
8. Job distress ¹	1.88 (.72)	1.89 (.81)	.25*	.34**	.25**	.30*	.02	.04	-.15	(.86)	.48**
9. Psych. complaints ¹	1.94 (.81)	1.93 (.64)	.33**	.29**	.11	.02	-.11	.04	.09	.44**	(.78)

Note. $n_1 = 89$ immigrant workers (below the diagonal), $n_2 = 146$ German workers (above the diagonal); Cronbach alphas appear in parentheses.

^aANCOVAs controlling for gender and education revealed mean differences between immigrant and German workers at $p < .05$.

¹Scale ranges from 1 to 5, ²Scale ranges from 1 to 4.

* $p < .05$. ** $p < .01$.

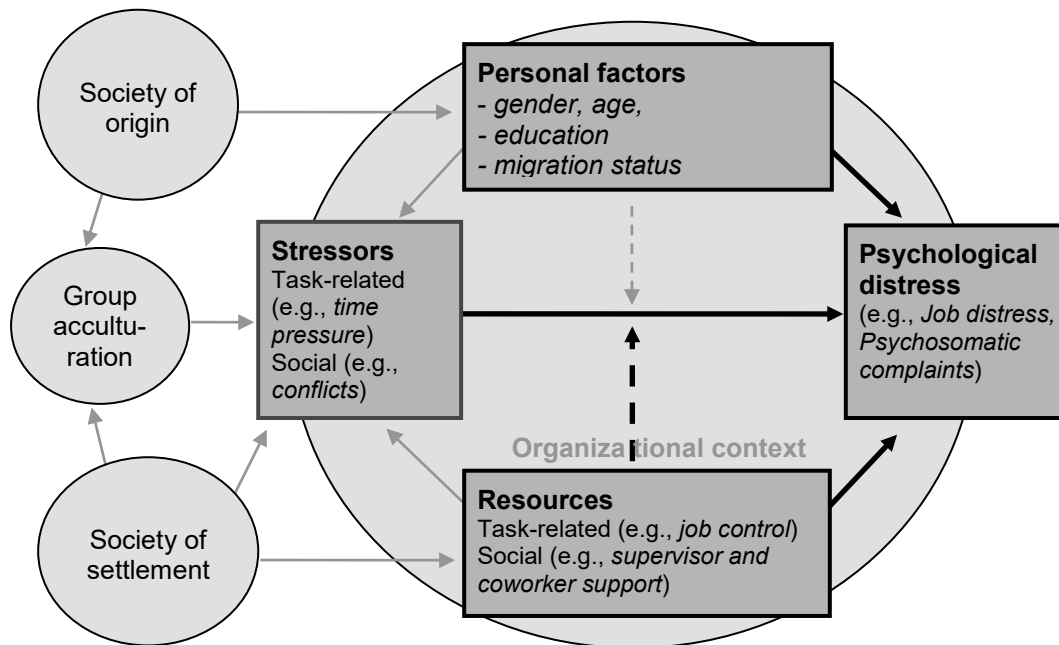
Table 2

Summary Results for Measurement Models and Tests of Measurement Invariance

Models	χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA (CI)</i>
Task-related					
Unconstrained	25.62	22	.34	.98	.03 (.01 - .06)
Equal factor loadings	27.63	23	.33	.97	.03 (.01 - .06)
Equal regression weights	30.26	28	.48	.99	.02 (.01 - .06)
Social environment at work					
Unconstrained	40.62	28	.12	.94	.04 (.01 - .07)
Equal factor loadings	40.94	29	.19	.95	.04 (.01 - .07)
Equal regression weights	54.15	35	.10	.91	.05 (.01 - .07)

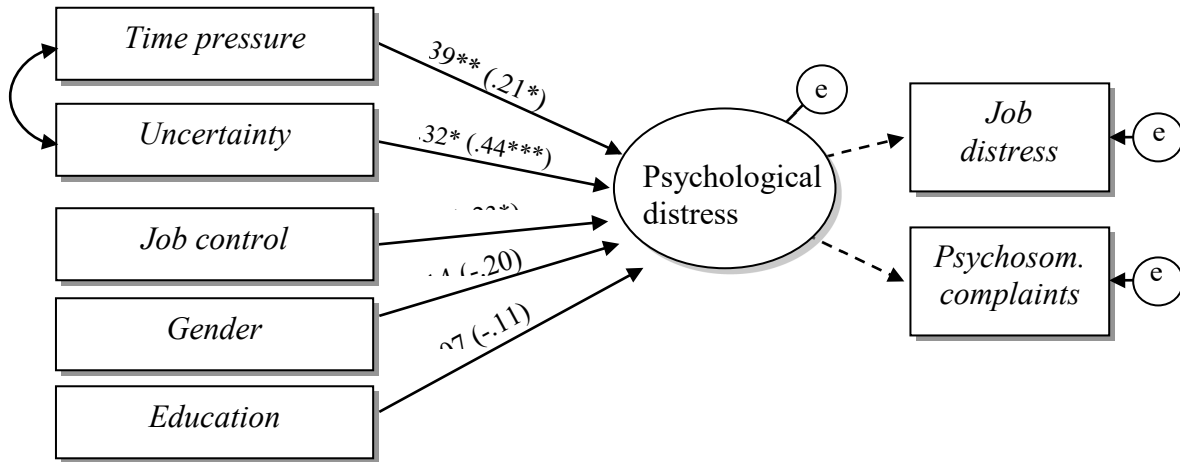
Note. CI = confidence interval; Bollen-Stine bootstrap adjusted *p*-values are reported.

Figure 1. Conceptual Framework Guiding Research on Immigrant Workers



Note. Bold/ dark boxes show the measured variables; bold arrows show the studied relationships. Dashed arrows show moderating effects. Unmeasured contextual variables appear in circles.

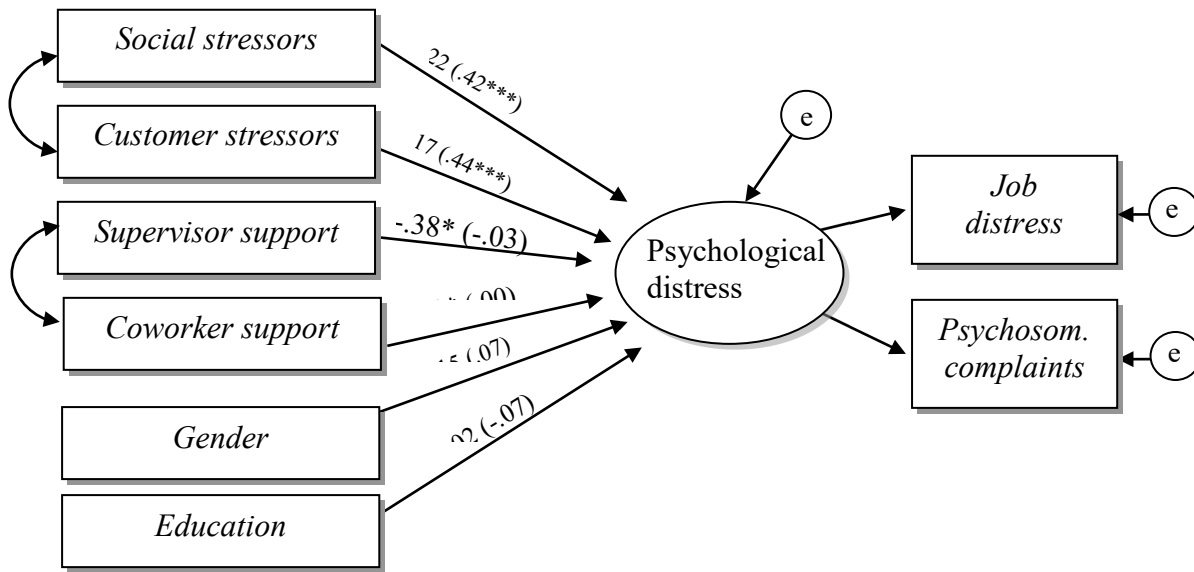
Figure 2. Task-related Model of the Multiple Group Analysis



Note. Standardized regression weights appear above the solid arrows: on the left for immigrant workers and in parentheses for German workers; arrows of the measurement model appear with dotted lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 3. Social Environment at Work Model of the Multiple Group Analysis



Note. Standardized regression weights appear above the solid arrows: on the left for immigrant workers and in parentheses for German workers; arrows of the measurement model appear with dotted lines.

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

Figure 4. Moderating Effect of Job Control on the Relationship of Uncertainty and Psychosomatic Complaints

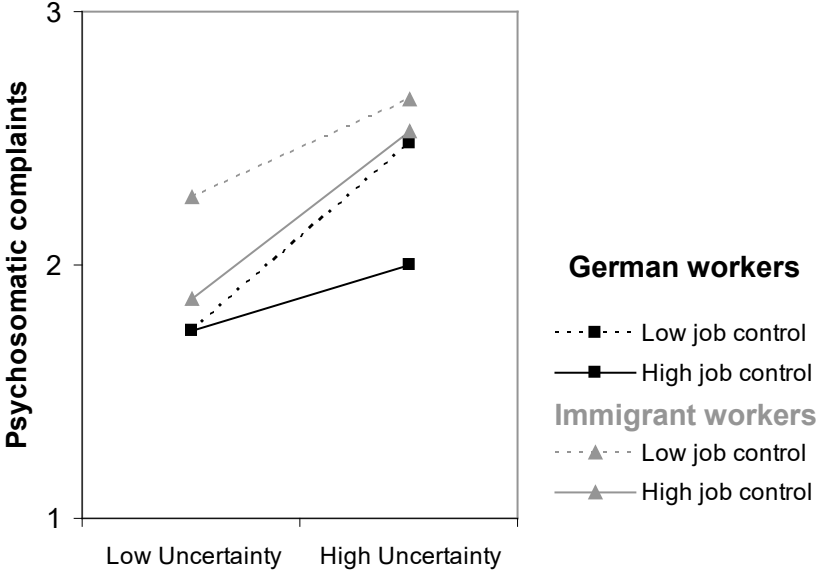


Figure 5. Moderating Effect of (a) Supervisor Support on the Relationship of Time Pressure and Job Distress and (b) of Coworker Support on the relationship of Uncertainty and Psychosomatic Complaints

