



# Working Below Skill Level as Risk Factor for Distress Among Latin American Migrants Living in Germany: A Cross-Sectional Study

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## Abstract

About 84,710 Latin American migrants currently live in Germany. Knowledge about their work situation in relation to their skill level and its association with mental health is limited. Therefore, the aims of this study were to assess the prevalence of working below skill level and its association with the prevalence of distress in Latin Americans living in Germany. This cross-sectional study included a convenience sample of 282 Latin American migrants living in Germany. Participants were recruited by a short online (Facebook, personal contacts) or interview-based questionnaire from November 2015 to April 2016. Questions included skill level, job category (categorized by ISCO 2008 code), socio-demographics, violence at the workplace and distress. The latter was assessed by Goldberg's General Health Questionnaire using a cut-off of 4/5. Descriptive statistics were followed by logistic regression analyses adjusting for potential confounders. About half of the study population reported symptoms of distress (45%). 63% of the population worked below skill level. 12-months prevalence of violence at the workplace was 14%. After adjustment, working below skill level was statistically significantly related to distress (odds ratio 2.80; 95% confidence interval 1.58–4.95). Working below skill level is common in Latin American migrants in Germany and may result in poor psychosocial well-being.

**Keywords** Latin American migrants · Germany · Working below skill level · Distress

## Introduction

Globalization, wars, income inequality, demographics and climate change have displaced people and their families [1]. The goal of these migrants is mainly to obtain new jobs opportunities, well-being, and security [2]. Migrants represent 3.3% (232 million) of the world population [1]. In Germany, 10% of the population (8.1 million) are migrants, of which the largest group is from Turkey (20%), followed by migrants from Poland (8%), and Italy (7%). Latin Americans represent only approximately 1% (84,710) of the German migrant population [3]. Therefore, research among Latin American migrants is up to now limited.

Non-recognition of their skills, capacities and qualifications of the labor market might force migrants to accept harder working conditions and to work below their skill level [4]. In the study presented in this article, the term working below skill level is defined as “a form of underemployment, where a job is found to be deficient in relation to the employment experiences of others, or regarding a person's education, work history, and expectations” [5]. Another term commonly used for working below skill level is educational-occupational mismatch. According to Piracha and Vadean, educational-occupational mismatch occurs when the level of education of an employee is lower or higher compared with the level required at the workplace [6].

The main reasons for working below skill level are discrimination and the “imperfect international transferability of human capital” [7]. This last factor includes deficient languages skills, lack of social connections, and difficulties to gain recognition of foreign qualifications, skills and work experiences [7]. Complementary, Chiswick and Miller consider a risk factor for educational-occupational mismatch if the migrant has already presented this mismatch in his/her home country [8].

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Overall, more migrants work below their skill level than non-migrants [7]. For example, a study in Canada, 2012 showed 30% prevalence of migrants working below skill level and 11% in non-migrants [9]. In Denmark, a migrant with a Danish degree presents three times more possibility to obtain a job according to his/her skill level than a migrant with a home country degree [7].

In health terms, working below the skill level might represent a chronic work stressor. One reason for this is that the employee does not have control over his/her working below skill level [10]. Additionally, Smith and Frank concluded that individuals working in an occupation lower than their socioeconomic status present lower levels of control and autonomy at work combined with higher levels of strain [11]. The resulting chronic stress may result in poor mental health and increase in cardiovascular mortality [10]. Furthermore, individuals working in a job which requires less education than they possess have over twice the odds to decline in their self-rated health (SRH) over the next 4 years compared to individuals working according to their education [11].

We could not find any study about Latin American migrants' work situation in Germany related to their skill level and its association with mental health. Therefore, the aim of this study was to assess the frequency of working below skill level and the prevalence of distress in Latin American migrants living in Germany.

## Materials and Methods

### Participants

Eligible participants were over 18 years old, self-identified as Latin American (Spanish speakers), residing in Germany at the time of the cross-sectional survey and having worked at least once during their residence time in Germany. Thus, housewives, students and unemployed subjects were excluded. Each participant gave informed consent after being informed about study objectives and procedures. At the beginning of the questionnaire, participants had the chance to enter a code consisting of three letters and three numbers (e.g. ASH456) only known to them. This way, the survey was kept anonymous while participants had the chance to resign from the study. The Ethics Committee of the Ludwig Maximilian University of Munich approved the study protocol and procedures.

### Data Collection and Questionnaire Instrument

From November 2015 to April 2016, 282 Latin American migrants full-filling the inclusion criteria participated in this cross-sectional study. Three different recruitment methods were used: first, we identified 21 Facebook groups of Latin

American migrants in Germany and posted study information with a link to the online questionnaire in these groups. Reminders were posted every Friday assuming that likelihood of participation would increase over the weekend. Second, we applied the snowball method sending invitation emails followed by two reminders to personal contacts of the authors. The third procedure was an interview-based method applied at social meeting point of Latin American migrants in Heidelberg, Hamburg, Berlin and Munich. For this, four interviewers from Latin America recruited participants in embassies, consulates, Latin American associations, churches and German language schools, among others. Interviews were directly entered into the online questionnaire.

The questionnaire consisted of 42 questions taken from the Spanish short version of the European Working Condition Survey [12], the Quality of Life and Employment, Labor and Health Conditions First National Survey (ENETS) [13], as well as the 12-item version of the General Health Questionnaire (GHQ-12) [14, 15]. Items included socio-demographics, level of education, current job, effort-reward imbalance, and mental distress (GHQ-12). One question about duration of living in Germany was added.

### Variable Definition

As exposure, we created a variable comparing level of education with job level for each participant using the "job analysis" (normative method) [7, 16]. Level of education was assessed in two categories: primary/secondary school education and higher level of education (university education). For the job level, the current job was coded according to the International Standard Classification of Occupations (ISCO-08) and grouped into two categories (manual work vs. intellectual work). To define these categories, the ISCO guidelines were followed taking into account occupation titles, description of the task and duties, skill level and specialization, among others [17]. Based on this, manual work includes individuals who have a job that requires no training, occupation-specific training or secondary school education. Intellectual work pertains to participants who have an employment where a university education is mandatory. Based on these categories, working below skill level was defined if the participant reported processing a higher level of education and working in manual work. The remaining participants were defined as working according to skill level and above skill level (7%).

As outcome, we used mental distress defined as a GHQ-12 score  $> 4$  using the 0-0-1-1 scaling method [18]. As potential confounders, we considered age (in four categories:  $\leq 29$ , 30–39, 40–49,  $\geq 50$  years), gender (male, female), region of origin (three categories: Mexico and Central America, Andean Community, other South American countries), 12-months prevalence of violence at the

workplace (physical violence or sexual harassment—yes or no), and time of residence in Germany (three categories:  $\leq 3$ , 4–9,  $\geq 10$  years).

## Statistical Analysis

Data were analyzed with Epi Info statistical software version 3.5.2. The descriptive analysis compared Latin American migrants working according to skill level and Latin American migrants working below skill level. Nominal and ordinal variables were presented as absolute and relative frequencies. In addition, we assessed the statistical independence with the outcome (distress) by Chi square test.

Furthermore, logistic regression models were developed using socio-demographic characteristics, violence at work, and working below skill level as predictors and psychological distress as an outcome. Crude and adjusted odds ratios (ORs) were calculated with 95% confidence intervals (95% CIs).

## Results

Overall, 61% of the participants were male, and 40% were in the age range between 30 and 39 years. The majority of the participants came from Andean Community (58%), and almost the half lived in Germany less or equal than 3 years. With respect to level of education, 18% finished primary or secondary education, while the rest had a higher educational level. 63% of the participants held a manual job (data not shown). Comparing level of education and occupational level, 62% of the population worked below their skill level. 14% of the participants were exposed to any type of violence in the workplace in the 12 months prior the survey. Gender, age, time of residence in Germany, region of origin and violence were not statistically significantly associated with working below skill level (Table 1).

About 45% of the participants reported distress. Working below skill level was associated with a higher prevalence of distress as compared to those working at their skill level (63% vs. 37%;  $p < 0.001$ ) (Table 2). Additionally, men (51%) were more likely to report distress than women (34%;  $p = 0.006$ ). None of the other variables was statistically significantly associated with distress.

In the adjusted logistic regression model, bivariate results were confirmed: working below skill level (odds ratio 2.80; 95% confidence interval 1.58–4.95) and being male (OR 2.25; 95% CI 1.30–3.87) were statistically significant associated to distress. Violence at the workplace was weakly associated with distress (Table 2).

**Table 1** Descriptive data of 282 Latin American migrants in Germany by working below skill level

Characteristics	Missing	Working below skill level		$p\chi^2$
		No <sup>a</sup>	Yes <sup>b</sup>	
		n (%)	n (%)	
Gender				
Male	3	115 (58.7)	53 (63.9)	0.42
Age (years)				
< 29	0	57 (28.6)	22 (26.5)	0.66
30–39		75 (37.7)	31 (37.4)	
40–49		46 (23.1)	24 (28.9)	
$\geq 50$		21 (10.6)	6 (7.2)	
Time of residence in Germany (years)				
$\leq 3$	3	65 (33.0)	31 (37.8)	0.74
4–9		64 (32.5)	25 (30.5)	
$\geq 10$		68 (34.5)	26 (31.7)	
Region of origin				
Andean Community	0	113 (56.8)	44 (53.0)	0.79
Other South American Countries		50 (25.1)	24 (28.9)	
Mexico and Central America		36 (18.1)	15 (18.1)	
Violence at the workplace				
No	7	167 (85.6)	65 (81.3)	0.36
Yes		28 (14.4)	65 (18.7)	

<sup>a</sup>Same level of education and same level of occupation: (primary and secondary education and manual work, or high level of education and intellectual work)

<sup>b</sup>High level of education/low level of occupation: (higher level of education and manual work)

## Discussion

Our results show a high prevalence of distress among Latin American migrants living in Germany (45%). Almost two-thirds of them (62%) worked below their skill level. Working below skill level was statistically significant associated to distress. Furthermore, 14% of the study population experienced violence in the workplace.

We identified a number of strengths in our study. First, we utilized online questionnaires which allowed us to access the target population easily and to minimize data entry error. In addition to the internet based sampling, personal interviews were conducted at social meeting points of the migrants. Mixing recruitment methods we attempted to have the study population as representative as possible. Using these methods we could include 282 migrants giving the study reasonable statistical power to assess the associations under study. We used validated Spanish version questionnaire instruments [12, 14, 15]. This allows a comparison with other European and international studies and the reliability of the information [19]. Finally, the principal investigator (BE) is

**Table 2** Prevalence of distress and results of logistic regression of distress (GHQ-12 > 4) in Latin American migrants by socio-demographics characteristics and violence at work

Characteristics	Prevalence n (%)	Crude OR (95% CI)	Adjusted OR (95% CI)
Gender			
Female	36 (34.0)*	<b>1</b>	<b>1</b>
Male	83 (50.9)*	<b>2.02 (1.22–3.35)</b>	<b>2.25 (1.30–3.87)</b>
Age (years)			
≤ 29	37 (49.3)	1	
30–39	49 (46.7)	0.90 (0.49–1.62)	
40–49	24 (36.4)	0.59 (0.30–1.15)	
≥ 50	10 (38.5)	0.64 (0.26–1.59)	
Time of residence in Germany (years)			
≤ 3	48 (51.6)	1	1
4–9	35 (40.7)	0.64 (0.36–1.16)	0.55 (0.29–1.05)
≥ 10	36 (40.0)	0.63 (0.35–1.12)	0.54 (0.29–1.02)
Region of origin			
Andean Community	68 (45.3)	1	
Other South American Countries	31 (43.0)	0.91 (0.51–1.61)	
Mexico and Central America	21 (42.0)	0.87 (0.46–1.68)	
Working below skill level			
No	70 (36.5)*	<b>1</b>	<b>1</b>
Yes	50 (62.5)*	<b>2.90 (1.69–4.98)</b>	<b>2.80 (1.58–4.95)</b>
Violence at the workplace			
No	99 (44.0)	1	1
Yes	20 (50.0)	1.27 (0.65–2.49)	1.15 (0.56–2.34)

Statistically significant OR values are given in bold

OR odds ratio, 95% CI 95% confidence interval, GHQ-12 distress assessed by Goldberg's General Health Questionnaire

Adjusted by: gender, time of residence in Germany, violence at the workplace, working below skill level

\**p*-value < 0.05 statistically significant

member of the target population speaking the same mother language (Spanish). This feature prevented misunderstanding errors [20]. The snowball recruiting method should be highlighted within the strengths of this study. It increased the sample size and the geographical scope in short time and at low costs [21] to reach the dispersed group of Latin American migrants in Germany. Also, sampling via social media is more effective than conventional snowball. For instance, in a study with Argentinean migrants in Spain, there was a 77% response with "Facebook snowball sampling" versus 42% with conventional snowball sampling (e-mails) [22]. Unfortunately, it was not possible to calculate response in our study and it is hard to evaluate the representativeness of our study population. However, we do not assume that the participation was dependent on exposure (working below skill level) and outcome (distress), therefore, we assume that no major selection bias was introduced.

Some limitations were also present in the study. Underreporting of violence at the workplace might be present as some participants might felt embarrassment by the questions on violence [23]. Another limitation in our study was that we

only could include a relative small number of questions to ensure that the participants would complete the whole questionnaire. In a pilot phase, more questions were included; however, from 18 subjects entering the online instrument only 11 completed it. Because of this, the questionnaire was shortened for the main study.

In our study, we used the "job analysis" method, which is based on an expert assessment between the level of education and occupation of an employee, and the educational requirements for every workplace [16, 24]. For instance, we coded the occupation and we grouped them according to their level of education based on the ISCO-08 [7, 25]. Nevertheless, a disadvantage of this method is the assumption that an employee always requires the same level of education to work at workplaces with the same tasks [16, 24].

The cross-sectional design was another limitation [23]. One may speculate that those with mental problems are more likely to start working below their skill level. However, the very high prevalence of working below skill level does not favor this explanation. For example, Nieto et al., who assessed educational mismatch in 15 European Union

countries showed that the prevalence of educational mismatch was the highest among migrants from non-EU countries (35%). For non-migrants, the prevalence was 24% and for migrants from EU countries 31% [26]. Moreover, according to Piracha and Vadean, the prevalence of educational mismatch (over-educated) was 39% for migrants and 30% for non-migrants in Spain [6]. However, Latin American migrants reported a lower incidence of over-education (26%) than Asian (39%) and African (48%) migrants due to the similitudes of the human capital between Latin America and Spain [27]. Additionally, a study in the United Kingdom (UK) reported that more than one in three non-UK nationals were overeducated. They mentioned that migrants accepted lower-skill jobs in order to gain experiences of living and working in a foreign country due to their short age (53% migrants were between 25 and 39 years old) [27]. Lastly, in Germany, 2015 the prevalence of working bellow skill level in the general population was 23% [28].

According to the German Federal Statistical Office, 42% of Central and South American, 20% Asian, 17% African and 16% European migrants in Germany have a high level of education (university degree). Difficulties to gain recognition of foreign qualifications [7] might be a cause of educational mismatch among Latin Americans. Also, we might assume that working below the skill level is more common in Latin Americans than the other groups of migrants in Germany due to incomplete transferability of immigrants' human capital (especially lower development than the host country and different language) [29]. Finally, we may justify the educational–occupational mismatch of this population due to the young age of the participants (68% of the participants were between 20 and 39 years old) [27].

“There are a number of stressors faced by the Latino immigrants that may predispose them to negative mental health outcomes” [30]. E.g., working conditions, level of acculturation, discrimination, time of residence in the host country, level of education and current job may contribute to the poor psychosocial well-being [20, 31]. Therefore, the high level of distress in our study population is not surprising and comparable to previous studies showing higher prevalence of poor mental health and lower health-related quality of life among migrants than non-migrants living in Germany [32, 33]. In the same way, in Spain the prevalence of distress among migrants was (men 16% and women 30%) and among non-migrants (men 12% and women 18%). Distress was assessed by GHQ-12  $\geq 3$  [2]. Also, Torres et al. reported 34% prevalence of distress in Latin American migrants working in the United States. It was measured through the Brief Symptom Inventory-18 (BSI-18) [34]. In Germany, the prevalence of poor psychosocial well-being was 30%. Subjective well-being was assessed by the World Health Organization's Well-Being Index (WHO-5) [35].

In our study, working bellow skill level was the most important risk factor for distress with an OR of almost 3 (95% CI 1.6–5.0). This is in line with a recent Swedish study showing a significant association between over-education and poor self-rated health among migrants (OR 1.93; 95% CI 1.07–3.50) [36].

We additionally found gender being a risk factor for distress. Effect modification by gender might be one reason as in Latin American culture men are usually the head of the household holding a higher occupational position whereby in our study men were more likely to work below skill level than women. This is controversial to previous studies among migrants living in Spain and the United States which indicated a higher prevalence of distress and a higher prevalence of educational mismatch in women than men [37, 38]. Whether the specific situation in Germany is a reason for this, needs to be evaluated in future study.

Although time of residence in Germany was not statistically significantly related to distress, a trend for decreasing distress with longer time of residency was found. This is in line with a study from the United States. The authors argue that over time, migrants obtain jobs according to their level of education because they acquired work experience, which helped them to be involve in the host country's labor market [8]. Also, a study in Sweden mentioned that migrants with a short stay in the host countries presented lower health-related quality of life than migrants with a long stay [39]. However, in our study the association remained even when adjusting for mismatch between level of education and job level. Reason might be a selection process as those feeling distressed might be more likely to return to their home country (the so-called healthy migrant effect) [40].

## New Contribution to Literature

To the extent of our knowledge, the present study is the first to assess the prevalence of distress among Latin American migrants living in Germany, the frequency of working bellow their skill level and the relationship between these two factors. Mismatch between level of education and job level affected the majority of our participants and negatively affected mental health.

## Conclusions

Working bellow the skill level is very common in Latin American migrants living in Germany. As it is related to distress, future research should assess how Latin American migrants could be better prepared for the German labor market.

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