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Working Conditions as Risk Factors for Depressive Symptoms among Spanish Speaking Au-Pairs Living in Germany

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Bernarda Cristina Espinoza Castro

born in

Cuenca, Ecuador

submitted on

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Supervisors LMU:

Habilitated Supervisor	Prof. Dr. Katja Radon.
Direct Supervisor	Dr. Tobias Weinmann.

Reviewing Experts:

1st Reviewer	Prof. Dr. Katja Radon.
2nd Reviewer	Dr. Tobias Weinmann.

Dean: Prof. Dr. med. Thomas Gudermann

Date of Oral Defense: 03 March 2022

Affidavit

Espinoza Castro, Bernarda Cristina
Surname, first name

Ziemssenstr. 1
Street

80336, Munich
Zip code, town

Germany
Country

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Dean's Office
Medical Faculty

MMRS

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Espinoza Castro, Bernarda Cristina

Surname, first name

Ziemssenstraße 1,

Street

80336, Munich

Zip code, town

Germany

Country

I hereby declare that the electronic version of the submitted thesis, entitled

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München, 13.06.2022

Place, date

Bernarda Espinoza

Signature doctoral candidate

Table of content

Key Words

Au pair, caregivers, migrants, working conditions, depressive symptoms, Major Depressive Syndrome, Latin American; Spanish-speaking migrants.

Abstract

Background: The number of au-pairs in Germany has been increasing in the past years. In 2019, 15,000 au-pairs were registered in Germany, with Colombians being the largest group (9.2%). The lack of a working protection law due to immigration status (au-pairs' visa) and the structural dependency of the employer/host family may contribute to au-pairs' poor working conditions and poor mental health. Therefore, the main objective of this study was to assess the occurrence of depressive symptoms and its association with sociodemographic characteristics, working conditions, and violence at work overtime among Spanish speaking au-pairs (SSA) living in Germany.

Methods: We conducted a prospective cohort study. Data was collected from August 2018 to April 2020. A total of 409 participants fulfilled the inclusion criteria for the cross-sectional analysis and 189 participants for the follow-up analysis. Depressive symptoms were assessed by the depression module Patient Health Questionnaire. Poisson regression model and Generalized Estimating Equations were applied to estimate the association between predictors and depressive symptoms.

Results: Forty percent of SSA living in Germany were between 22 and 24 years old, 91% were female, and 48% came from Colombia. In the cross-sectional analysis, experienced au-pairs presented a higher prevalence of depressive syndromes (30% vs. 16%; p <0.001) than newcomer au-pairs. Over time, working more than forty hours per week (OR: 3.47; 95% 95%CI: 1.46–8.28), suffering physical violence (OR: 4.95; 95% CI: 2.16–9.75), and struggling to adapt au-pairs schedules to social and family activities were associated with depressive symptoms.

Conclusion: Poor working conditions were associated with higher prevalence of depressive symptoms among SSA living in Germany. These results may be used to create awareness among policy makers and au-pairs' agencies as well as to develop interventions on working conditions to prevent poor mental health.

List of figures

List of abbreviations

MDS	Major Depressive Syndrome
OR	Odds Ratio
PRs	Prevalence Ratios
CI	Confidence Interval
PHQ-9	Patient Health Questionnaire – 9
DSM-4	Diagnostic and Statistical Manual of Mental Disorders VI
GEE	Generalized Estimating Equation
PDWs	Paid Domestic Workers
EU	European Union
JD-R	Job-Demands Resources model
SSA	Spanish speaking au-pairs

List of publications

A. Espinoza-Castro, B., Weinmann, T., Mendoza López, R., & Radon, K. (2019). Major depressive syndrome (MDS) and its association with time of residence among Spanish speaking au-pairs living in Germany. International journal of environmental research and public health, 16(23), 4764.

B. Espinoza-Castro, B., Weinmann, T., Mendoza López, R., & Radon, K. (2021). Working Conditions as Risk Factors for Depressive Symptoms among Spanish-Speaking Au Pairs Living in Germany—Longitudinal Study. International Journal of Environmental Research and Public Health, 18(13), 6940.

1. My contribution to the publications

1.1 Contribution to paper A

Paper A “MDS and its Association with Time of Residence among Spanish Speaking Au-Pairs Living in Germany” was published in October 2019. I was first author and corresponding author. I contributed to the conceptualization, design, application for funding, data collection and analysis, writing the original draft, reviewing, and editing the final version of the article.

1.2 Contribution to paper B

Paper B “Working Conditions as Risk Factors for Depressive Symptoms among Spanish-Speaking Au Pairs Living in Germany—Longitudinal Study” was published in April 2021. My contributions as first and corresponding author were the conceptualization, study design, application for funding, data collection and analysis, writing the original draft, reviewing, and editing the final version of the article.

2. Introductory summary

2.1 Background

In several European countries throughout the 1950s, industrialization, labor market reforms, and advances toward gender equality all contributed to an increase in the number of paid domestic workers (PDWs) [1]. Most PDWs were female from low-income countries who were primarily responsible for domestic work and child care [1]. In recent years, middle-class European families have been unable to afford PDWs, and additionally, public childcare centers have become overcrowded [2]. As a result, new forms of migration emerged, such as "au-pairs" [2].

Au-pair is a French term for “on mutual terms” or “at equal share” [3]. Usually, an au-pair is a “young foreign person who cares for children and does domestic work for a family in return for room and board and the opportunity to learn the family’s language” [4]. In general, au-pair programs are a cost-effective option for young foreigners to expand their general education, such as learning a foreign language, discovering new cultures, and traveling independently [5].

The requirements to be an au-pair in the European Union (EU), according to the “European Convention on hiring au-pairs,” are 1) being age between 18 and 28 years old, 2) having complete secondary education, 3) having a basic knowledge of the host country's language, and 4) having a contract with the host family for a minimum of six months and maximum twelve months [6]. Additionally, au-pairs from non-EU countries need a residence document linked to the au-pair contract with the host family [5, 7]. Au-pairs in the EU should work at a maximum of 30 hours per week, have at least one full day off per week (at least one Sunday per month), have four weeks of paid holidays in one year, take part in language courses during their free time, and receive pocket money [6, 8].

2.2 Problem statement

Due to linguistic and cultural barriers, as well as a lack of knowledge about their rights, migrants constitute a vulnerable and a hard-to-reach population [9]. In addition, migrant workers are subjected to a variety of adverse working conditions, including employment insecurity, limited government support, longer working hours, discrimination, among others [10].

Migrants have shown to present a higher prevalence of depressive symptoms than non-migrants [11]. Their mental health might be affected by their experiences in the home country, the migration process itself, and living and working conditions in the host country [12]. O’Connor et al. mentioned

that poor working conditions and violence at work were associated with poor mental health and poor psychological well-being among migrants [13].

According to the theory of the "Healthy Migrant Effect," the time of residence in a host country has also an impact on migrants' mental health and well-being [14]. This effect describes two phenomena. First, migrants are healthier on arrival than non-migrants, as the healthier, younger, and better educated population is more likely to emigrate. Second, the migrants' physical and mental health deteriorates or even disappears in a relatively short period due to language barriers, cultural differences, loss of social network, low socio-economic status, poor working conditions, among others [14, 15].

Moreover, focusing in Latin American migrants, they have shown a high prevalence of depression associated to overwork [16]. Also, a study in Germany reported a 45% prevalence of distress associated with occupational-educational mismatch among Latin American migrants living in Germany [17]. As well as in migrants, poor working conditions, cultural differences, and time of residence in Germany may also contribute to poor mental health among SSA.

2.2.1 Spanish speaking au-pairs living in Germany

In Germany, the number of au-pairs has increased from 12,000 in 2015 to 15,000 in 2019, with Colombian au-pairs representing the largest group (9.2%) [18]. Limited working protection laws due to immigration status (au-pairs' visa) and the structural dependency of the employer/host family may contribute to poor working conditions, working violence and even harassment [7, 19]. The main issues that au-pairs living in Germany reported were working overtime and unclear job instructions [20]. Among Latin American au-pairs living in Germany a 12% prevalence of violence at work and 3% sexual abuse were registered [21].

Regarding cultural aspects, Latin American au-pairs, usually come from upper-middle-class households, are highly educated, and are still financially dependent on their parents [19]. Hence, some of them are not used to carry out household activities because in their families these duties are done by employees. The cultural difference between the SSA (high context culture) and German host families (low context cultures) may contribute to a misunderstanding and communicational dissonance, particularly during disagreements, negotiations, or conflicts [22].

From a theoretical perspective, the previously described working and cultural aspects can be considered characteristics that are frequently specified as job demands in occupational stress models such as the Job-Demands Resources (JD-R) Model [23]. These job demands affect the workers' well-being via stress-related mechanisms and become a potential risk factor for poor mental health.

Those demands, according to the JD-R model, include physical, psychological, organizational, and social aspects of the job [23]. For instance, SSA may experience organizational demands such as overtime and unclear working instructions, physical demands such as physical violence and harassment, and psychological/emotional demands such as living without their families in a foreign country for the first time in their lives [15].

To the best of our knowledge, there are limited studies about occupational risks factors and mental health among SSA living in Germany. In studies about au-pairs in general, they presented prevalence of poor mental health, especially symptoms of anxiety and depression [24]. We hypothesize that time of residence in Germany and poor working conditions might be potential risk factors for poor mental health among SSA living in Germany.

2.3 Objectives

The main objective of this study was to assess the occurrence of depressive symptoms with an explorative quantitative and longitudinal approach and to analyze its association with sociodemographic characteristics, working conditions, and violence at work among SSA living in Germany (Figure 2.1).

In this group we aimed at:

- exploring the prevalence of depressive symptoms and Major Depressive Syndrome (MDS),
- analyzing the potential association of MDS with the time of residence in Germany, and
- assessing the association between sociodemographic characteristics, working conditions, and violence at work with depressive symptoms over time.

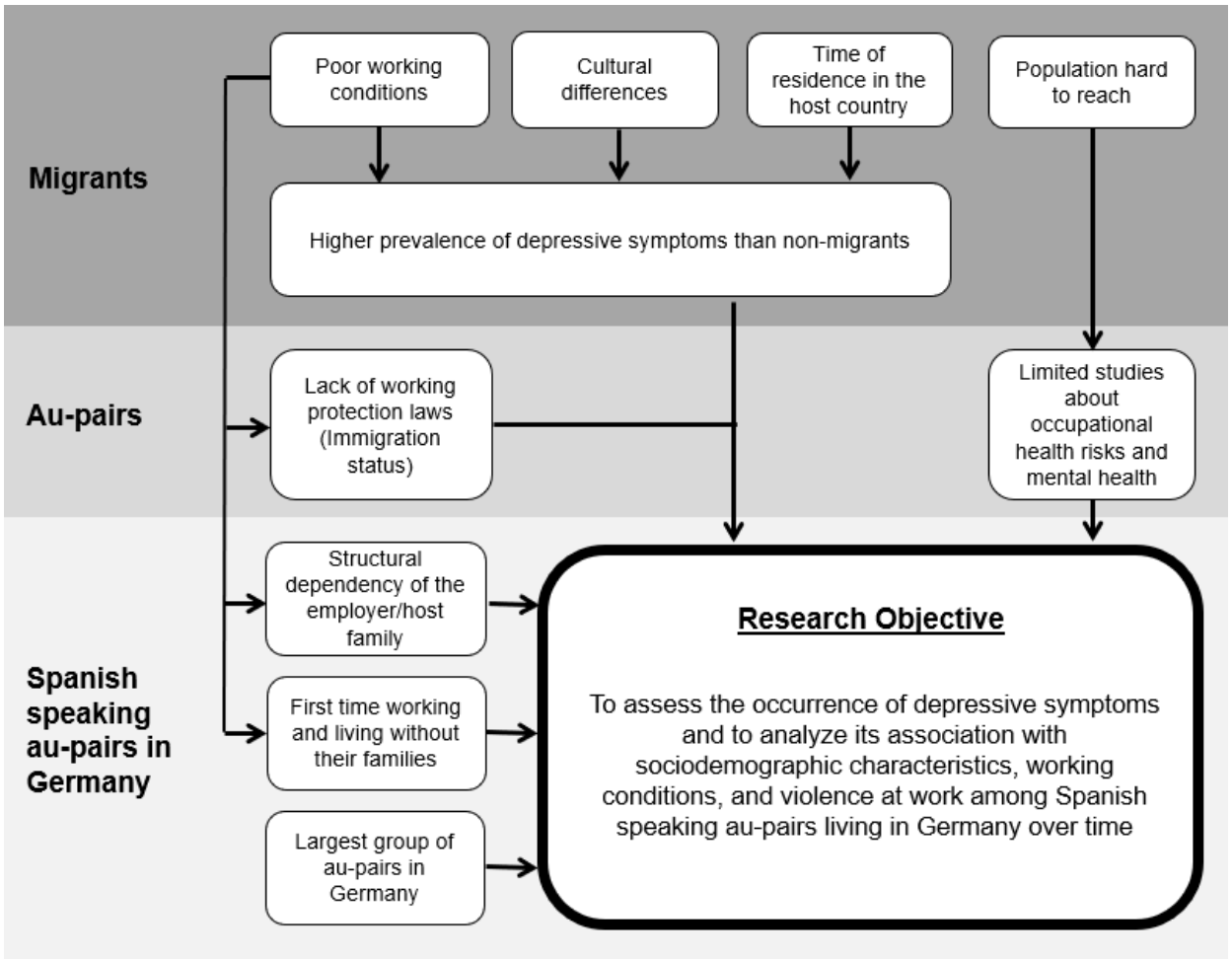

Figure 2-1: Problem statement and main objective.

2.4 Methods

We used two quantitative approaches to reach the main objective. A cross-sectional (paper A) to assess the prevalence of depressive symptoms and Major Depressive Syndrome comparing newcomers* and experienced† au-pairs, and a prospective cohort study (paper B) to explore depressive symptoms and its associated factors over time. The prospective cohort study included three measurement intervals: baseline (T0) conducted when the au-pairs arrived in Germany, first follow-up (T1) performed one month after the baseline, and second follow-up (T2) completed six months after the baseline.

Both approaches followed a three-step methodology: 1) fieldwork, 2) data cleaning, and 3) data analysis. In the fieldwork, data were collected using an online survey. Nominal and ordinal variables were described as absolute and relative frequencies. Finally, bivariate analysis and regression models were performed as part of the data analysis using SPSS® version 25.0. The data collection procedure was the same for both approaches, whereas the inclusion criteria, bivariate analysis, and regression methods differed.

2.4.1 Study population

The study population of this research was SSA living in Germany. For the cross-sectional study, the inclusion criteria were: 1) being au-pair living in Germany; 2) being born in a Spanish speaking country; and 3) being aged between 18 and 28 years. Au-pairs were classified into newcomers and experienced and recruited using two snowball methods: 1) conventional snowballing and 2) snowballing via social media.

For the conventional snowballing, we sent invitation emails to 16 au-pair agencies in Latin America, 4 in Spain, and 3 in Germany. We asked that the agencies forward the invitation email and the online survey link to their au-pair candidates. For snowballing via social media, we identified 58 Facebook groups of SSA living in Germany. The information about the study and the link to the online survey were posted in these groups.

The newcomers au-pairs collected in the cross-sectional study were used as the study population for the baseline (T0) in the prospective cohort study. The first and second follow-ups included participants who have completed and fulfilled the baseline. We sent the survey link, as well as

* Newcomers au-pairs: living in Germany less or equal to three weeks.

† Experienced au-pairs: living in Germany for more than three weeks.

two reminder emails to collect participants for the follow-ups. The first reminder was issued two weeks after the first follow-up assessment, and the second reminder four weeks later. To encourage participation, we also offered a five-euro online shopping coupon to those who completed the survey (Figure 2.2).

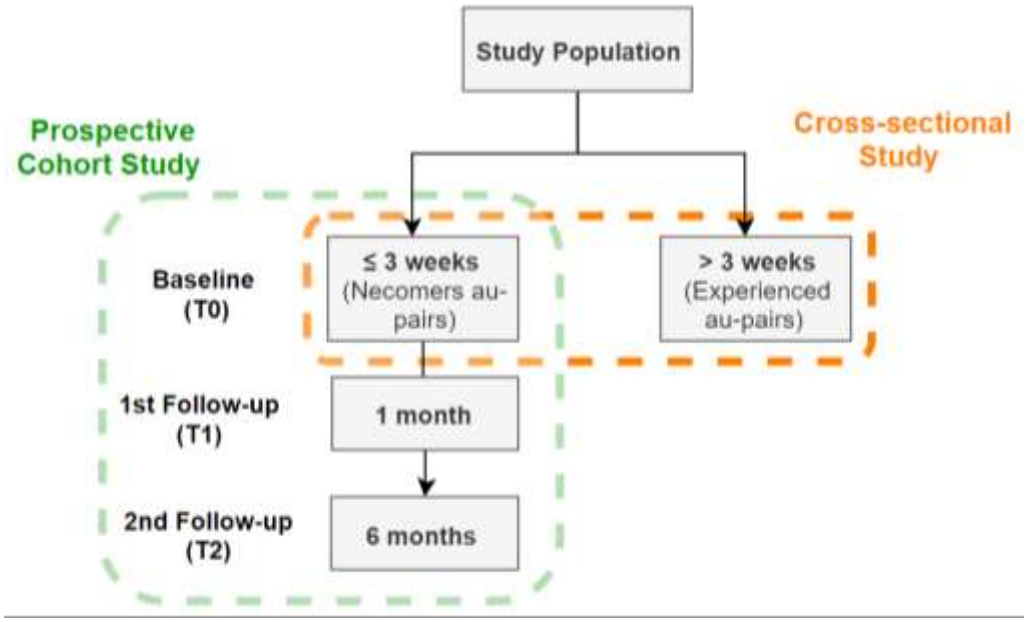

Figure 2-2: Study population

2.4.2 Questionnaire instrument

A Spanish online survey with 33 questions was used to collect data from August 2018 to April 2020. The Quality of Life and Employment, Labor and Health Conditions First National Survey [25] and the Spanish short version of the European Working Condition Survey [26] helped us to assess the sociodemographic characteristics, working conditions, and violence at work. Depressive symptoms were assessed by the Patient Health Questionnaire depression module (PHQ-9) [27]. This is a nine-item Likert-type scale questionnaire based on the Diagnostic and Statistical Manual of Mental Disorders VI's (DSM-4) criteria [28].

2.4.3 Data analysis

In the descriptive analysis of the cross-sectional study, we compared newcomers and experienced SSA. For the bivariate analyses, we used chi-squared test to assess independence between the time of residence in Germany (exposure) and MDS (outcome). We also performed Poisson regression using as predictors sociodemographic characteristics, level of education, and time of residence in Germany and MDS as outcome.

In the prospective cohort study, the association between sociodemographic characteristics and working conditions with prevalence of depressive symptoms was tested using Fisher's exact test. Also, we applied the McNemar test to assess the association between the dependent variable (depressive symptoms) in T0 and T1 with T2. Finally, we used Generalized Estimating Equations (GEEs) to assess within-subject correlations over time, [29], and crude and adjusted Odds Ratios (ORs) with 95% CI. A semi-parametric regression-based technique for managing with missing data in longitudinal research due to follow-up dropouts is also included in GEEs [29-31] .

2.4.4 Ethical Considerations

All the participants provided their consent after being informed about the aims and methods of the study, and about the anonymity and confidentiality agreement. To preserve participants' anonymity and allow them to withdraw from the study at any time, participants developed an identification code consisting of three letters and three numbers (e.g., AFR987) at the beginning of the survey. The study protocol was approved by the Ethics Committee of the Medical Faculty of Ludwig-Maximilians-University Munich (project number 18-139).

2.5 Results

2.5.1 Cross-sectional study (Paper A)

A total of 409 participants fulfilled the inclusion criteria and were considered for the cross-sectional study. Almost half of the participants (40%) were between the ages of 22 and 24 years, 91% were female, and 48% came from Colombia. About 78% studied at least one year at the university. Over half of the participants (57%) were living in Germany for more than three weeks “experienced au-pairs”.

The prevalence of depressive syndromes was 25% and the prevalence of MDS was 14%. Experienced au-pairs presented higher prevalence of depressive syndromes (30% vs. 16%; $p < 0.001$) and higher prevalence of MDS (19% vs. 8%; $p < 0.001$) than newcomer au-pairs. The adjusted Poisson regression model confirmed the bivariate results. Experienced au-pairs were more likely to develop depressive syndromes (prevalence ratio 1.77; 95% confidence interval: 1.13–2.75) and MDS (prevalence ratio 2.25; 95% confidence interval: 1.22–4.14) than the newcomers.

2.5.2 Prospective cohort study (Paper B)

Based on the inclusion criteria, 189 participants were eligible for the prospective cohort study. During follow-ups, 90 (47.6%) participants dropped out of the study. Of the 99 participants who remained in the study across the three-time intervals, 90% were female, 86% highly educated and 55% came from Colombia. There was a higher prevalence of MDS among participants who dropped out of the study during follow-ups compared with those who remained in the study. Of those who stayed in the study, 28% presented depressive symptoms at the baseline, 28% at the first follow-up, and 27% at the second follow-up. There was a statistically significant bivariate association between working more than forty hours per week, working on holidays, bad schedule adaptation to social and family commitments, violence at work, physical violence by the host children and verbal offenses and depressive symptoms.

In the adjusted GEE model, au-pairs who worked more than forty hours per week were three times more likely to present depressive symptoms than those who did not (OR: 3.47; 95% CI: 1.46–8.28). Furthermore, those who suffered physical violence had nearly five times more risk to be depressed than those who had not (OR: 4.95; 95% CI: 2.16–9.75). Finally, au-pairs who struggled to adapt their schedules to social and family activities were twice as likely to be depressed as those who did not (OR 2.24; 95% CI: 0.95–5.28).

2.6 Discussion

In this study, a group of 189 SSA living in Germany were followed to investigate potential risk factors associated with depressive symptoms. The results showed an association between poor working conditions such as working more than forty hours per week, poor adaptation of the work schedule to social and family obligations, and suffering physical violence from the host children with depressive symptoms. However, in the prospective cohort study, the time of residence in Germany was not a risk factor for the development of depressive symptoms.

2.6.1 Time of residence in Germany as risk factor associated with poor mental health

We expected that time of residence in Germany would be a factor associated with depressive symptoms among SSA based on both: 1) the “Healthy Migrant Effect” [14], and 2) a 11% difference in the prevalence of MDS between newcomers and experienced au-pairs in the cross-sectional study. In the prospective study, however, we could not identify that the time of residence in Germany is a risk factor for developing depressive symptoms among this population.

We assume two explanations for the discordance in the cross-sectional and prospective results related to the time of residence in Germany. First, the "Healthy Migrant Effect" was missed in the cross-sectional analyses due to sampling design (convenience sampling), which lead to au-pairs with poorer health being more interested in participating than those with good mental health. Second, in the prospective cohort study, we observed an 8% prevalence of MDS at the baseline and a 13% at the first follow-up. Most of the newcomers who developed MDS between the baseline and the first follow-up (about 80%) dropped out the study. Following the “Healthy Migrant Effect”, we assumed that au-pairs with severe symptoms may have returned to their home countries before completing their program [14, 32].

To reach a conclusion regarding the cross-sectional study, we recommend working with random samples. Which however is difficult to obtain in a hard-to-reach population like au-pairs. We therefore used a longitudinal approach in which we saw that many of those who developed symptoms returned to their home country. Unfortunately, we were not able to trace those who returned home.

2.6.2 Poor working conditions associated with poor mental health

We identified an association between working more than forty hours per week, poor adjustment of schedule to social and family obligations and suffering physical violence from host children with

depressive symptoms in SSA in Germany. Our findings are confirmed by the results of previous research on au-pairs.

Regarding poor working conditions, for instance, in Norway, it was found that au-pairs often worked longer than the permitted hours [1] and one in three au-pairs worked more than 30 hours per week [33]. Smith also reported that 26% of au-pairs in Irland work between 40 to 60 hours per week [34]. These poor working conditions, such as overwork, lack of privacy, and the inability of au-pairs to control their living and working conditions, have been associated with poor mental health and depression in au-pairs [16].

In terms of poor working condition and their association with reduced mental health, another group of temporary migrants, live-in caregivers[#], also showed a 67% prevalence of poor mental health related to overload, working long hours, being separated from their relatives, and living and working in the same place [35]. Vahabi et al. reported a 23% prevalence of depression symptoms and a 43% prevalence of MDS associated with overtime work and poor compatibility schedule with social and family obligations among live-in caregivers [36].

Finally, violence has been also identified in caregivers and au-pairs. In Canada, a study reported stress among live-in caregivers due to children's disobedience and aggression [37]. Likewise, a study in England, in which au-pairs showed stress and anxiety because they were physically abused by their host children [38].

In summary, our findings regarding poor mental health and poor working conditions are consistent with previous research, particularly among live-in caregivers. However, the significance of our findings lies in the fact that this is one of the few studies to link poor working conditions with poor mental health among au-pairs.

2.6.3 Strengths and limitations

To the best of our knowledge, we conducted the first prospective cohort study among SSA living in Germany assessing working conditions as risk factors for depressive symptoms.

Au-pairs may present depressive symptoms before they arrive in the host countries. The ability to capture this condition by using the time of arrival in Germany as an inclusion criterion was a strength of this study. Another advantage was the use of internationally standardized questionnaires, which allowed comparison with previous and future studies [39]. Linguistic, cultural, and

Live-in caregivers are temporary migrants who care for children or seniors and live in the employer's home. We therefore consider them to be comparable to au-pairs.

misunderstanding interpretations were avoided as the main author is a native Spanish speaker [40].

Internet-based recruitment has been questioned because individuals with and without Internet access have different characteristics and because individuals who choose to participate in the study may differ from those who do not [41]. However, one advantage of prospective cohort studies is that factors affecting recruitment of participants are unlikely to lead to selection bias in exposure-outcome associations [41]. In other words, selection bias with respect to metal health is not expected in the prospective cohort study because participants were invited to participate when they arrived in Germany and were not previously exposed to the studied potential risk factors for depressive symptoms.

Moreover, recruitment and follow-up can be conducted via the Internet at a lower cost than traditional research because the Internet eliminates the dependency on in-person interviews or mailed questionnaires [41]. We were also able to recruit a vulnerable and hard-to-reach population through the online-based sampling method and incentives [42, 43].

Finally, because we focused exclusively on SSA, we do not know the extent to which the results are generalizable to au-pairs coming from other nationalities or working in other countries. We recommend further prospective cohort studies that should include other countries and au-pairs of other nationalities. Then, we could compare the results and determine whether poor working conditions and depressive symptoms occur in au-pairs in general and not only in the studied population.

In addition, we recommend a complementary qualitative approach for further research. Perceptions, feelings, and moods behind the risk factors for poor mental health can help to better understand the findings. How do au-pairs who work more than 30 hours a week and suffer physical violence at the hands of their children feel? What do they do when face with these situations? Who do they ask for help or advice? What would they recommend for overcoming these problems? How can the authorities better support them?

2.7 Conclusions

Our study identified poor working conditions associated with a high prevalence of depressive symptoms among SSA living in Germany. The results of this study may be used to create awareness among policymakers and au-pairs' agencies.

Policies should ensure good working conditions for au-pairs such as working 30 hours per week, time to attend language schools, and at least one full day off per week for leisure activities. These policies should be controlled by interviewing the host families and au-pairs during the program and controlling the assistance to language courses.

The results reflect, additionally, the need for the development of interventions at the beginning and during the program to prevent poor mental health. Intervention should focus on creating awareness, improving working conditions, the acculturation process, and mental health. Agencies and government entities should implement the interventions with the support of host families and experienced au-pairs. These interventions could be focus groups, psychological counseling, or motivational talks, which can also be disseminated through social networks. They can help both parties, host families and au-pairs, to reflect on their rights, roles, responsibilities, and obligations, as well as to reduce loneliness and depression. Special attention should be paid to au-pairs without any organizational support.

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4. Publications

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Article

Major Depressive Syndrome (MDS) and its Association with Time of Residence among Spanish Speaking Au-Pairs Living in Germany

Bernarda Espinoza-Castro [1,2,*], Tobias Weinmann [2], Rossana Mendoza López [3] and Katja Radon [1,2]

1 Center for International Health, University Hospital, LMU Munich, 80336 Munich, Germany; katja.radon@med.uni-muenchen.de
2 Institute and Clinic for Occupational, Social and Environmental Medicine, University Hospital, LMU Munich, 80336 Munich, Germany; Tobias.Weinmann@med.uni-muenchen.de
3 Center for Translational Research in Oncology, Instituto do Câncer do Estado de São Paulo, 01246000 São Paulo, Brazil; rossana@usp.br
* Correspondence: B.Espinoza@campus.lmu.de; Tel.: +49-176-433-56022

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Abstract: The number of au-pairs in Germany is on the rise. In 2017, about 13,500 au-pairs were living in German families, almost half of them originating from non-European Union (EU) countries and many of them from Spanish speaking countries. Knowledge about mental health among au-pairs in Germany is limited. Therefore, the main objective of this study was to assess the prevalence of Major Depressive Syndrome (MDS) and its potential association with time of residence among Spanish speaking au-pairs living in Germany via an exploratory analysis. This study included a sample of 409 Spanish speaking au-pairs living in Germany. We classified the au-pairs into those who lived less than three weeks in Germany (newcomer au-pairs) and those who lived more than three weeks (experienced au-pairs). The participants were recruited by an online survey (Facebook and Instagram) from August 2018 to June 2019. Socio-demographic characteristics, time of residence in Germany and the level of education were assessed. MDS was assessed by the Patient Health Questionnaire depression module (PHQ-9). Poisson regression models were calculated to evaluate the association between time of residence in Germany and prevalence of MDS. Most of the participants were female (91%). Almost half of them came from Colombia (48%) and were in the age range between 22–24 years (40%). Prevalence of MDS was 8% among newcomers and 19% among experienced au-pairs ($p = 0.002$). Differences remained statistically significant after adjustment for potential confounders (age, level of education and time of residence in Germany) (prevalence ratio 2.25; 95% confidence interval: 1.22–4.14). In conclusion, au-pairs may develop mental symptoms during their time abroad. Future prospective studies should aim at identifying potential risk factors and preventive measures.

Keywords: au-pairs; migrants; time of residence; mental health; major depressive syndrome

1. Introduction

An au-pair (French for "on mutual terms") is "a usually young foreign person who cares for children and does domestic work for a family in return for room and board and the opportunity to learn the family's language" [1]. Being an au-pair is considered an opportunity for a young person to get to know another culture as well as to travel, gain experience and learn a language at low cost.

The number of au-pairs in Germany is on the rise (around 1000/year from 2012 onwards) [2]. In 2017, about 13,500 au-pairs were living in German families, almost half of them originating from non-European Union (EU) countries. Most of the au-pairs from EU countries were from Spain, France,

and Italy, while from non-EU countries the largest numbers came from Georgia, Ukraine and Colombia. Accordingly, Colombians were the largest group (514 au-pairs in 2017) among Latin Americans, followed by Mexicans and Brazilians. In total, Spanish speaking au-pairs constitute one of the biggest groups of au-pairs in Germany [3].

According to the German Federal Agency of Work, in order to be an au-pair in Germany, young foreigners should be between 18 and 28 years, should have completed secondary school education, should have basic German knowledge, and should have a contract with the hosting family minimum for six months and maximum for 12 months [4]. Usually, au-pairs search for families through agencies, via internet platforms, social networks or personal contacts. Agencies, after an application fee, help au-pairs to search for a potential family, to apply for a visa, and to provide support during their time abroad [4].

Au-pairs live in a structural dependency of the employer/host family [5]. Some are perceived as the cheapest way to hire full-time domestic service, which often leads to poor working conditions such as work overload, overtime, and underpayment [6]. For example, according to the 2018 economic survey of developments and trends in au-pair exchange programs, the main problems that au-pairs living in Germany reported were work overtime and having unclear work instructions [3]. Additionally, preliminary results of a cross-sectional study indicate that 12% of the au-pairs experience violence in the family and 3% are suffering from sexual abuse [7].

Also, a French study reported that Latin American au-pairs coming to Europe suffer extra challenges because they usually come from families with a middle or high socio-economic status and high levels of education (university degrees). Hence, they are not used to perform household tasks [6]. At the same time, most of them might experience their first job and first time abroad without their families. Other challenges are the foreign language and conflicts between low and high context culture [8]. According to Würtz et al, all cultures are connected to each other through communication styles. In some places, such as Northern European countries, the communication is direct and explicit (low-context culture) [9]. However, in other cultures, such as Latin Americans, an important part of the communication includes body language and implicit messages (high-context culture) [9]. Hence, Latin American au-pairs come from a high-context culture to the German low-context culture, which is another challenge that many of them not even expect. Finally, there usually is lack of preparatory training to au-pairs before going abroad, especially when au-pairs search their host families for themselves.

Another factor that influences migrants' mental health and well-being is the time of residence in the host country. For instance, studies suggest that experienced migrants had worse mental health and well-being than newcomer migrants due to the so-called "healthy migrant effect" [10–12]. This theory refers to two phenomena. First, migrants arrive in the host country with relatively good physical and mental health (a requirement for immigration and work permits), especially as healthy individuals are more likely to migrate than the rest of their compatriots. They can better handle leaving their home country, family and friends, and starting a new life often in an unknown country. Often, they even are healthier than local born residents in the host country. Then, according to the second phenomenon, progressively this advantage declines or even disappears over a relatively short period [12,13].

In total, such cultural challenges and sometimes poor working conditions among Spanish speaking au-pairs as well as dependence and inexperience may result in poor mental health, especially symptoms of anxiety or depression [14]. However, specific knowledge about mental health among Spanish speaking au-pairs in Germany is limited. Therefore, the main objective of this study was to assess the prevalence of Major Depressive Syndrome (MDS) and its potential association with time of residence among Spanish speaking au-pairs living in Germany.

2. Materials and Methods

2.1. Participants and Sampling

Data collection for this study was carried out from August 2018 to June 2019. To be eligible for this study, participants needed to satisfy three inclusion criteria: (1) being an au-pair in Germany; (2) being born in a Spanish speaking country; (3) being aged from 18 to 28 years (age required in Germany to work as an au-pair from non-EU countries). Each participant accepted an informed consent form, which contained information about the study objectives, the methodological procedures, and the declarations on the anonymity and confidentiality principles. At the beginning of the survey, the participants created their own identification code with three letters and three numbers (e.g., AFR987). This kept the participants anonymous and gave them the opportunity to resign from the study. The Ethics Committee of the Medical Faculty at the Ludwig Maximilian University of Munich approved the study protocol (project number 18-139).

2.2. Data Collection and Questionnaire Instrument

A total of 409 Spanish-speaking au-pairs living in Germany participated in this study. We used convenience sampling due to the unavailable sampling frame and a dispersed distribution of Spanish-speaking au-pairs in Germany, which is common among "hard-to-reach populations" such as migrants [15]. Hence, we applied two snowball recruitment methods: First, we contacted 16 au-pairs agencies in Latin America (9 in Colombia, 5 in Mexico and 2 in Argentina), 4 in Spain and 3 in Germany. We sent them invitation emails with the link to the online survey asking them to share these invitations with their au-pair candidates (conventional snowball sampling). Secondly, we created Facebook advertising and set a budget for each click (0.10 €), based on the inclusion criteria of the study population. This advertising was posted every week from Friday to Monday assuming that during the weekends the participation would increase (Facebook snowball sampling). Also, we identified 58 Facebook groups of Spanish-speaking au-pairs living in Germany and we posted the link to the online survey with the study information in these groups. To increase participation, we offered an online shopping voucher worth 5 euros to the participants who answered the entire questionnaire.

An online questionnaire in Spanish (LimeSurvey®) with 21 questions was used to collect the data. The questions were taken from the Spanish short version of the European Working Condition Survey [16], and the Quality of Life and Employment, Labor and Health Conditions First National Survey (ENETS) [17]. With these instruments, we assessed socio-demographic characteristics, the level of education and the current job. We also asked about their current job to ensure that the participants were au-pairs at that moment. Major Depressive Syndrome was evaluated by the Patient Health Questionnaire depression module (PHQ-9) [18].

2.3. Variable Definition

We used the variable time of residence in Germany as the main exposure, which included two categories: (1) "newcomer au-pairs" (living in Germany less or equal than three weeks) and (2) "experienced au-pairs" (living in Germany more than three weeks). According to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V), "the diagnosis of MDS requires five or more depressive symptoms (included either a depressed mood or anhedonia) to be present within a 2-week period" [19]. Therefore, three weeks after the arrival to Germany was used as a cut point period. As outcome, we used the PHQ-9 to assess MDS. This tool is a 9-item Likert-type scale, where each item corresponds to the nine depressive symptoms criteria from the DSM-IV [20]. For each symptom, the participants selected whether the symptom had bothered them during the previous two weeks: 0 = "not at all", 1 = "several days", 2 = "more than the half of the days", or 3 = "nearly every day" [21]. Major Depressive Syndrome (MDS) was regarded as present if there were at least five positive responses in the "more than half the days" or "nearly every day" categories and one of these responses included depressed mood (Question 1) or anhedonia (Question 2). Other Depressive

Syndrome (ODS) was diagnosed if there were two to four positive responses in the "more than half the days" or "nearly every day" categories and one of these responses included depressed mood (Question 1) or anhedonia (Question 2) [21]. For the sensitivity analysis, all participants with ODS and MDS were included in the category "depressive syndromes". We considered as potential confounders: sex (male, female), age (in three categories: 18–21, 22–24, 25–28 years), region of origin (in four categories: Spain, Colombia, Mexico and Central America, and South America without Colombia), and high education (in two categories: yes or no, where "yes" means at least one year of university).

2.4. Statistical Analysis

SPSS® software version 25.0 was used to analyze the data. The descriptive analyses compared newcomers and experienced Spanish speaking au-pairs living in Germany. Nominal and ordinal variables were described as absolute and relative frequencies. Bivariate analyses with Chi-square test were conducted to assess statistical differences between exposure (time of residence in Germany) and the outcome (MDS). Moreover, Poisson regression models with robust variance estimation were performed using socio-demographic characteristics, level of education and time of residence in Germany as predictors and MDS as outcome. According to Coutinho et al., logistic regression works well for estimating the ratio of probabilities of a rare disease [22]. However, prevalence odds ratios (PORs) become a poor estimator for high prevalence diseases [23]. Therefore, differences between prevalence ratios (PRs) and PORs increase when the prevalence of the disease increase as well [24]. Zochetti et al. suggested the implementation of Poisson regression calculating PRs when the prevalence of disease exceeds ten percent [25].

Due to the high prevalence of the outcome (19% MDS among experienced au-pairs), we therefore performed a Poisson regression with robust variance estimation, and calculated prevalence ratios rather than odds ratios (ORs). Robust variance estimations help to adjust the overestimation of the variance and produce adequate confidence intervals [22,24].

Crude and adjusted PRs were calculated with 95% confidence intervals (95% CI). Missing values (4.15%) were dropped from the analysis, leaving only complete cases (complete-case analysis).

3. Results

Most of the participants were female (91%) and 40% were between 22–24 years old. Almost half of the participants came from Colombia (48%), followed by Mexico (23%). Regarding the level of education, 78% of the participants were highly educated. More than half of the participants were experienced au-pairs (57%). Gender, age, region of origin and level of education were not statistically significantly associated with the time of residence in Germany (Table 1).

Table 1. Descriptive data of 409 Spanish-speaking au-pairs by time of residence in Germany.

Characteristics		Missing	Time of Residence		pX^2
			Newcomers (≤3 weeks) N = 176	Experienced (>3 weeks) N = 233	
			n (%)	*n* (%)	
Gender	**Female**	8	156 (89.1)	211 (90.6)	0.87
	Male		16 (10.9)	18 (9.4)	
Age (years)	18–21	3	65 (37.4)	70 (30.2)	0.29
	22–24		63 (36.2)	97 (41.8)	
	25–28		46 (26.4)	65 (28.0)	
Region of origin	Spain	8	14 (8.1)	17 (7.4)	0.08
	Colombia		90 (52.3)	103 (45.0)	
	Mexico and Central America		46 (26.7)	57 (24.9)	
	South America (w/o Colombia)		22 (12.8)	52 (22.7)	

Table 1. *Cont.*

Characteristics		Missing	Time of Residence		pX^2
			Newcomers (≤3 weeks) N = 176	Experienced (>3 weeks) N = 233	
			n (%)	*n* (%)	
Higher education	Yes	7	139 (81.8)	179 (77.2)	0.26
	No		31 (18.2)	53 (22.8)	
Depressive symptoms	DS -	4	123 (71.1)	131 (56.5)	0.01
	DS +		21 (12.1)	30 (12.9)	
	ODS		15 (8.7)	27 (11.6)	
	MDS		14 (8.1)	44 (19.0)	

DS-: none reported depressive symptoms; DS+: at least one of the required screening symptoms is fulfilled, but the total symptom score is below the threshold diagnosis. ODS: Other Depressive Syndrome: 2–4 reported depressive symptoms and one of the symptoms is depressed mood or anhedonia. MDS: Major Depressive Syndrome: ≥5 reported depressive symptoms and one of the symptoms is depressed mood or anhedonia.

About 25% of the participants presented depressive syndromes, and 14% had MDS. Experienced au-pairs reported a higher prevalence of MDS (19% vs. 8%; $p < 0.001$) (Table 2) and higher prevalence of depressive syndromes (16% vs. 30%; $p < 0.001$) as compared to newcomer au-pairs (Table 3). The remaining variables were not statistically significantly associated with any depressive syndrome. In the adjusted Poisson regression model, the bivariate results were confirmed: experienced au-pairs had more than two times the prevalence of MDS than the newcomers (prevalence ratio 2.25; 95% confidence interval: 1.22–4.14) (Table 2), and almost two times the prevalence of depressive syndromes (prevalence ratio 1.77; 95% confidence interval: 1.13–2.75) (Table 3).

Table 2. Prevalence of Major Depressive Syndrome (PHQ-9) and results of crude and adjusted Poisson regression models.

Characteristics		Prevalence *n* (%)	Crude PR (95% CI)	Adjusted PR (95% CI)
Gender	Male	2 (5.9)	1	N/A
	Female	56 (15.4)	2.61 (0.64–10.69)	N/A
Age (years)	18–21	21 (15.8)	1	1
	22–24	21 (13.2)	0.87 (0.47–1.60)	0.80 (0.38–1.65)
	25–28	16 (14.4)	0.88 (0.45–1.72)	0.78 (0.40–1.50)
Region of origin	Spain	3 (9.7)	1	N/A
	Colombia	26 (13.5)	1.38 (0.41–4.60)	N/A
	Mexico and Central America	15 (14.7)	1.52 (0.44–5.25)	N/A
	South America (w/o Colombia)	13 (17.8)	1.84 (0.52–6.46)	N/A
Higher education	No	13 (15.7)	1	1
	Yes	44 (13.9)	0.97 (0.51–1.84)	1.13 (0.55–2.28)
Time of residence in Germany (weeks)	Newcomers (≤3)	14 (8.1)	1	1
	Experienced (>3)	44 (19.0)	2.20 (1.20–4.04)	2.25 (1.22–4.14)

PR: Prevalence Ratio; 95% CI: 95% Confidence Interval. Adjusted for age, higher education, time of residence in Germany.

Table 3. Prevalence of Depressive Syndromes (PHQ-9) and results of crude and adjusted Poisson regression models.

Characteristics		Prevalence	Crude PR	Adjusted PR
		n (%)	(95% CI)	(95% CI)
Gender	Male	7 (20.6)	1	N/A
	Female	92 (25.3)	1.20 (0.552.59)	N/A
Age (years)	18–21	33 (24.8)	1	1
	22–24	41 (25.8)	1.06 (0.66–1.70)	0.99 (0.60–1.64)
	25–28	26 (23.4)	0.91 (0.53-1.54)	0.85 (0.48–1.52)

Table 3. *Cont.*

Characteristics		Prevalence	Crude PR	Adjusted PR
		n (%)	(95% CI)	(95% CI)
Region of origin	Spain	6 (19.4)	1	N/A
	Colombia	47 (24.5)	1.25 (0.53–2.93)	N/A
	Mexico and Central America	21 (28.8)	1.48 (0.60–3.68)	N/A
	South America (w/o Colombia)	23 (22.5)	1.16 (0.47–2.86)	N/A
Higher education	No	21 (25.3)	1	1
	Yes	77 (24.4)	0.99 (0.60–1.62)	1.06 (0.61–1.83)
Time of residence in Germany (weeks)	Newcomers (≤3)	29 (16.8)	1	1
	Experienced (>3)	71 (30.6)	1.76 (1.13–2.73)	1.77 (1.13–2.75)

PR: Prevalence Ratio; 95% CI: 95% Confidence Interval. Depressive syndromes: all participants with ODS and MDS (PHQ-9: Patient Health Questionnaire). Adjusted for age, higher education, time of residence in Germany.

4. Discussion

Our results show a high prevalence of MDS among Spanish-speaking au-pairs living in Germany (14%), especially among experienced au-pairs (19%). Time of residence in Germany was statistically significantly associated with MDS.

The high prevalence of MDS in our study is in line with the prevalence rate of depression (20%) among migrant workers in Europe [26]. This number is considerably higher than the prevalence of major depression in the general European population [27,28]. Also, a study in Germany reported a 14% prevalence of MDS and a 29% prevalence of any depressive disorder associated with acculturation level among Turkish migrants [29]. Furthermore, according to Latin American migrants, a high prevalence of distress was shown in Germany (45%) [30] and in the United States (34%) [31]. O'Connor et al. described stressors which might influence poor psychosocial well-being among Latin American migrants such as current jobs, levels of education, working conditions, time of residence in the host country, acculturation level, social and family support, among others [32].

Although no data are available on the prevalence of depression among au-pairs, previous studies identified a high prevalence of MDS and other mental diseases among live-in caregivers. Live-in caregivers are temporal migrants living in a private household and providing child or elderly care and thus to some extend comparable to au-pairs [33]. For example, in Canada, Vahabi et al. reported a 23% prevalence of symptoms of depression and a 43% MDS prevalence among live-in caregivers [34]. Lack of privacy, individuals' powerlessness to have control over their living-working conditions, and overtime work contributed to higher scores of depression [34]. Also, Carlos and Wilson reported that 67% of live-in caregivers experienced poor physical and mental health mainly due to overload and overtime work, living in their employers' homes, and separation from their families [35]. Moreover, Spitzer et al. stated that live-in caregivers suffered stress due to lack of social and family support in the host country, disobedience from children, work overload, overtime, lack of permanent residency status, lack of food and privacy, and profound loneliness [36].

Another possible reason causing the decrease of psychosocial well-being among au-pairs might be poor working conditions. Even though the migrant status and the working conditions of au-pairs are clearly defined by the German law, au-pairs from non-EU countries are excluded from certain labor rights that regular employees have [37]. Hence, control from pertinent institutions is difficult mainly because the host family's home is a closed environment [5]. Hence, in cases of poor working conditions or even violence, it is difficult for au-pairs to change or improve their situation because their living place and residence permits are tied to the host families [5,6]. In addition, living and working in the same place might lead to lose boundaries between working and free time [13].

Moreover, in this study, experienced au-pairs reported a higher prevalence of MDS as compared to newcomer au-pairs (19% vs. 8%). This finding is consistent with studies that expressed concerns about the continuous decline of migrants' mental health from their arrival in the host country, which is defined as the "healthy immigrant effect". Robert and Gilkinson concluded that newcomer migrants

are significantly less likely than non-migrants to report symptoms of depression, anxiety, and other psychosocial distress, but it is unclear whether this health advantage persists over time [11]. Also, a study in four European countries summarized that, over time, migrants presented poorer physical and mental health than non-migrants due to lack of social networks, poor working conditions and difficulties with the non-native language [17]. Moreover, in Canada, 43% of live-in caregivers believed that their health status had worsened since they arrived to the host country [35].

Time of residence can also influence mental health. Migrants' acculturation process is a long-term source of emotional stress [38,39] due to interpersonal and structural challenges specific to their poor working and living conditions [39]. Therefore, Wu and Schimmele concluded that "time of residence is an important factor in the healthy migrant effect, which appears to be disproportionately concentrated among recent immigrants" [39].

A strength of this study was the use of an internet-based sampling method (conventional and Facebook snowball sampling), which increased the geographical scope and the sample size of a vulnerable population on a topic which has rarely been studied before [40]. An additional advantage was the usage of an online survey to reach the Spanish-speaking au-pairs because it minimized data entry errors and facilitated the data analysis. Furthermore, we provided an incentive of online shopping vouchers worth 5 euros. We included material incentives because this approach has been shown to increase participation and fulfilment in online surveys in Germany [41]. This method of using incentives lead to a relatively large sample size of 409 Spanish-speaking au-pairs.

The application of the Spanish version of internationally standardized questionnaires instruments [16–18] permits the comparison with other international studies [42]. Furthermore, the fact that the main author (BE) is a Spanish native speaker allowed us to decrease misunderstanding due to the language and also possible culturally misleading interpretations [43]. Moreover, to the extent of our knowledge, this is the first study to assess the prevalence of MDS and its potential association with time of residence among Spanish speaking au-pairs living in Germany.

On the other hand, the study suffers from some potential limitations. First, selection bias may have occurred due to the usage of a convenience sample. For instance, participants already suffering from mental disorders may have been more likely to participate in this study than healthy participants [44]. Second, it was not possible to calculate the response rate, making it hard to evaluate the representativeness of our study population [45]. Third, we included only Spanish-speaking au-pairs in the study. Hence, it is difficult to know to what extent our results can be transferred to au-pairs from other countries. Fourth, as an exploratory study among Spanish-speaking au-pairs in Germany, we did not include in the survey any questions related to the place of residence/employment or pre-existing mental disorders. Omissions of these variables might be fully explained by the experiences of au-pairs with respect to mental health. Therefore, such variables may be included in future research. Finally, the non-probability sampling design limits our ability to generalize the results of the current data. Future studies may thus be designed in a prospective way and collect information on potential risk factors for depression in au-pairs.

To the extent of our knowledge, the present study is the first exploratory approach to investigate mental health among Spanish-speaking au-pairs living in Germany. This knowledge is important to create intervention strategies to prevent a deterioration of mental health among this vulnerable population. Such strategies should prepare and advise au-pairs and their host families before they start living together to have control throughout the year. Interventions could for example be carried out by the agencies or by governmental entities. Also, according to Vahabi and Wong, these interventions and mental health risks should be spread through social networks and social support organizations to reduce isolation and depression among live-in caregivers among whom au-pairs form a special group [34].

5. Conclusions

Au-pairs may develop and suffer from poor mental health during their time in Germany. This knowledge is critical and can be used to inform policy makers as well as to find intervention

strategies and adequate counseling before and during the au-pairs program. Future prospective studies should aim at identifying potential risk factors.

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I hereby confirm that the extent of my contribution (content-related and volume) in the publication submitted is stated truthfully.

Bernarda Espinoza

Signature doctoral candidate

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- their agreement to the submission of the publications.

Name of co-author	Extent of contribution (content-related and volume)	Signature of co-author
1. Tobias Weinmann	Conceptualization, validation, resources, writing-review and editing, supervision.	Tobias Weinmann
2. Rossana Mendoza López	Conceptualization, validation, formal analysis, supervision.	Rossana Mendoza
3. Katja Radon	Conceptualization, validation, resources, writing-review and editing, supervision, project administration.	Katja Radon
4.		
5.		
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9.		
10.		

Please list further authors on a separate page

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Article

Working Conditions as Risk Factors for Depressive Symptoms among Spanish-Speaking Au Pairs Living in Germany—Longitudinal Study

Bernarda Espinoza-Castro [1,2,*], Tobias Weinmann [2], Rossana Mendoza López [3] and Katja Radon [1,2]

1 CIH-LMU Center for International Health, LMU University Hospital Munich, 80336 Munich, Germany; katja.radon@med.uni-muenchen.de
2 Institute and Clinic for Occupational, Social and Environmental Medicine, LMU University Hospital Munich, 80336 Munich, Germany; Tobias.Weinmann@med.uni-muenchen.de
3 Center for Translational Research in Oncology, Instituto do Câncer do Estado de São Paulo, Sao Paulo 01246, Brazil; rossana@alumni.usp.br
* Correspondence: B.Espinoza@campus.lmu.de; Tel.: +49-894-4005-2485

Abstract: Previous studies have shown poor working conditions and poor mental health among au pairs. However, there are limited longitudinal approaches to these conditions. Therefore, the main objectives of this study were to assess the occurrence of depressive symptoms longitudinally and to analyze the association between sociodemographic characteristics, working conditions and violence at work with depressive symptoms over time among Spanish-speaking au pairs living in Germany. A prospective cohort study was performed with three measurement intervals, which included 189 participants. Depressive symptoms were assessed by the Patient Health Questionnaire (PHQ-9). Generalized Estimating Equation (GEE) models were implemented to estimate the association between predictors and depressive symptoms. Au pairs who worked >40 h per week were more than three times more likely to experience depression than those who did not (OR: 3.47; 95% CI: 1.46–8.28). In addition, those exposed to physical violence were almost five times more likely to suffer from depression (OR: 4.95; 95% CI: 2.16–9.75), and au pairs who had bad schedule adaptation to social and family commitments had twice the risk of depression than those who did not (OR: 2.24; 95% CI: 0.95–5.28). This knowledge could be of interest for future au pairs, host families, au pair agencies and policy makers. Together, they could improve awareness and monitoring of au pair working conditions.

Keywords: au pair; caregivers; migrants; working conditions; depressive symptoms; Latin American; Spanish-speaking migrants

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1. Introduction

In the 1950s, the number of housewives in Europe decreased due to industrialization, women's participation in the labor market and the enrichment of the middle class in the global North, among other causes [1]. Therefore, the number of paid domestic helpers, mainly female migrant workers, increased, and new migration forms such as au pairs emerged [1]. An "au pair placement provides an opportunity for young people to learn a language and a culture abroad, while temporarily (1–2 years) living as a 'member' of a host family and providing light domestic work and childcare for this family" [2]. The term au pair comes from the French 'at par,' 'at equal shares' or 'on mutual terms.' It refers to the mutual benefit gained from au pairs and host families [3].

During the last decade, the number of au pairs in Europe has been on the rise. On the one hand, middle class European families cannot afford paid domestic workers, there are limited public childcare centers and private centers are costly [4]. On the other hand, au pair programs are the cheapest way for young foreigners to achieve personal

development, such as learning or improving their language skills, traveling independently or experiencing other cultures [5]. In Germany, from 2012 onwards, there has been an increase in the number of au pairs every year [6]. In 2018, a total of 14,000 au pairs started working in Germany, most of them coming from Colombia, Georgia, and Ukraine [7]. In the last three years, Germany perceived a marked growth of Latin American au pairs [7]. Consequently, Spanish-speaking and especially Latin American au pairs represent one of the largest groups in Germany (e.g., 9.2% Colombians and 4.3% Mexicans).

Latin American au pairs are usually highly educated, come from families with middle or high socio-economic status, are still dependent on their parents and their major desire is achieving personal development rather than maximizing their earnings [8]. Furthermore, some of them might perceive childcare as a low-skilled job, typically done by a domestic helper from a different economic or ethnic group [8]. This perception might turn into poor mental health as presented in Espinoza et al., who identified 45% prevalence of distress associated with working below skill level among Latin American migrants living in Germany [9]. In addition, some conflicts may appear due to cultural differences. High context (HC) cultures such as those in Spanish-speaking countries present indirect and implicit communication through gestures or body language, while low context (LC) cultures such as those in northern European countries have an explicit and direct communication style [10]. These differences could cause misunderstandings and communicational dissonance, especially during disputes, negotiations or conflicts [11].

Another challenge is that Spanish-speaking au pairs might experience poor working conditions. Firstly, residence permission in Germany for non-EU au pairs is tied to the host family. The au pairs' immigration status excludes employee protection laws such as minimum wage (they receive only pocket money) or forty hours of work per week as a full-time employee [2]. Furthermore, the live-in structural dependency of the employer/host family without any direct outside supervision might contribute to poor working conditions, abuse or even harassment among au pairs [2]. For example, according to a recent survey, the main problems which au pairs face in Germany are working overtime and having unclear working instructions [6]. Another study from Germany reported a prevalence of twelve percent for violence and three percent for sexual abuse among Latin American au pairs [12].

From a theoretical perspective, those working conditions can be seen as factors that in occupational stress models such as the Job-Demands Resources (JD-R) model are typically characterized as job demands [13]. Via stress-related mechanisms, those demands can affect a worker's well-being, and are thus a potential risk factor for individuals' mental health. According to the JD-R model, those demands include physical, psychological, organizational and social aspects of the job; we assume that au pairs face demands in several of those categories (e.g., overtime and unclear working instructions as organizational aspects, harassment as a physical aspect, being separated from their families for the first time in their life as a psychological/emotional demand) [13].

Consequently, we hypothesize that au pairs might be at elevated risk of developing poor mental health and poor psychological well-being when childcare duties are more difficult than they expected, household tasks are added to their workload and cultural and foreign language challenges emerge [14]. For instance, in an earlier cross-sectional study, we observed a 19% prevalence of Major Depressive Syndrome (MDS) particularly among experienced Spanish-speaking au pairs living in Germany [15].

Thus, the length of stay in the host country is another factor that influences migrants' mental health and well-being, and it is consistent with the "Healthy Migrant Effect." This effect refers to two phenomena: (1) the healthiest population tends to migrate, and (2) migrants' physical and mental health deteriorates or even disappears in a relatively short period of time [16].

To increase awareness among decision-makers, public health bodies and host families about potential mental health problems among au pairs and to potentially prevent depressive symptoms in au pairs, it is important to determine which factors are linked

to depressive symptoms and when they emerge. Depressive symptoms are defined as "somatic and non-somatic factors that in sum determine the presence or absence of several subtypes of depression, including major depressive episodes" [17,18]. We focus on the Spanish-speaking population because of the challenges already mentioned, such as educational mismatch (they are typically over-educated), poor living and working conditions, violence at work and the conflict between HC and LC cultures.

Based on the above-mentioned theoretical considerations regarding job demands and their potential effect on mental health and well-being, and following-up on a previous cross-sectional analysis [15], we hypothesize that poor working conditions and violence at work are associated with depressive symptoms among Spanish-speaking au pairs, and that these symptoms increase with the time spent in the host country. Thus, we aimed to assess the occurrence of depressive symptoms with an explorative quantitative and longitudinal approach to analyze the association between sociodemographic characteristics, working conditions and violence at work with depressive symptoms over time.

2. Materials and Methods

2.1. Study Design and Population

We performed a prospective cohort study with three measurement intervals:

(1) Baseline (T0): carried out when the au pair arrived in Germany (less or equal to three weeks from arrival).
(2) 1st follow-up (T1): one month after the initial assessment.
(3) 2nd follow-up (T2): six months after the initial assessment.

Inclusion criteria were: (1) being a "newcomer au pair", i.e., living in Germany less or equal to three weeks at baseline, (2) being born in a Spanish-speaking country and (3) being aged between 18 and 28 years old (the age required in Germany to work as an au pair from non-EU countries).

2.2. Recruitment of Participants

The data was collected from August 2018 to April 2020. As no official registry of Spanish-speaking au pairs in Germany exists, we applied two snowball recruitment methods: 1) conventional snowballing and 2) snowballing via Facebook. In a previous article, we described these methods in greater detail [15]. For conventional snowballing, we contacted 23 au pair agencies in Germany, Spain and Latin America. We asked them to share the study invitation email and the link to the online survey with au pair candidates. For Facebook, we distributed the link for the online survey through paid advertising. Furthermore, we posted the online survey's link in 58 Facebook groups of Spanish-speaking au pairs living in Germany.

For the follow-ups, we emailed the questionnaires to participants who attended the baseline study with two reminders to ensure a higher response. The first reminder was sent after two weeks and the second after four weeks from the initial follow-up. As an incentive, we provided an online shopping voucher worth five Euros to those participants who answered the entire questionnaire for the baseline study and an additional five Euro voucher for each follow-up.

In this way, we approached a total of 422 Spanish-speaking au pairs living in Germany. According to the inclusion criteria, 189 participants were eligible for the study. A total of 90 (47.6%) participants dropped out of the study during the follow-ups, so that for 99 individuals data was available for baseline and both follow-ups (Figure 1).

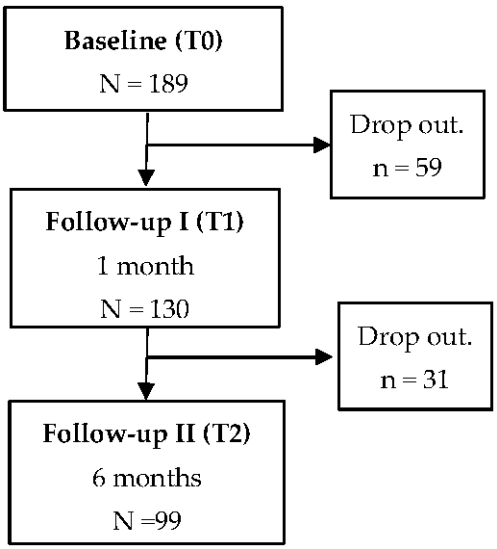

Figure 1. Number of participants in each stage of the study.

All participants gave informed consent to participate in the study after they read the objectives, procedures and ethical principles of the study. To maintain the participants' anonymity, they created their own identification code at T0. This code consisted of three letters and three numbers (e.g., HGT968). Participants were able to resign from the study at any time. The study was approved by the Ethical Committee of the Medical Faculty at the Ludwig Maximilian University of Munich (project number 18–139).

2.3. Questionnaire Instruments

The questionnaire included 33 questions to assess depressive syndromes, working conditions, violence at the workplace and socio-demographic characteristics. The questions were provided in Spanish and were administered as an online questionnaire using LimeSurvey®.

Depressive Syndromes were evaluated by the Spanish version of the Patient Health Questionnaire depression module (PHQ-9) [19]. This tool is a 9-item Likert-type scale designed to assess depression during the previous two weeks. It follows nine depressive symptoms criteria from the DSM-IV: "(1) Depressive mood, (2) Loss of interest or pleasure in almost all activities, (3) Significant (more than 5% in a month) unintentional weight loss/gain or decrease/increase in appetite, (4) Sleep disturbance, (5) Psychomotor changes (agitation or retardation) severe enough to be observable by others, (6) Tiredness, fatigue, or low energy, or decreased efficiency with which routine tasks are completed, (7) A sense of worthlessness or guilt, (8) Difficulty thinking, concentrating, or making decisions, and (9) Recurrent thoughts of death or suicidal ideation, or suicide attempts" [20,21]. Each symptom is rated on a 4-point Likert scale ranging from 0= "not at all", 1= "several days", 2= "more than the half of the days", to 3= "nearly every day" [20]. According to PHQ-9, subjects are classified in four categories: (1) Depression-symptom-screen negative (DS-): none of the positive responses are present "more than half of the days;" (2) Depression-symptom-screen positive (DS+): at least one of the positive responses are present at "more than half of the days excluding depressed mood and lack of interest;" (3) Other Depressive Syndrome (ODS): two to four positive responses are present in "more than half the days" (suicide item: "several days or more") including at least depressed mood or lack of interest and (4) Major Depressive Syndrome (MDS) at least five positive responses are present in "more than half the days" (suicide item: several days or more) including depressed mood or lack of interest [20,22]. For our analysis, we defined the outcome variable "depressive symptoms" as a binary variable (yes or no), where "yes" included all the participants with DS+, ODS and MDS and "no" included participants classified as DS-.

Socio-demographic characteristics, working conditions and violence at the workplace were assessed by the Spanish short version of the European Working Conditions Survey [23] and the Quality of Life and Employment, Labor, and Health Conditions First National Survey (ENETS) [24]. Working conditions included the following variables: working hours per week (≤40 h or >40 h), working on holidays (yes or no), days off per week (one day or two days), work schedule's adaptation to social and family commitments (good or bad), au pair agency contract (yes or no), extra hours of babysitting (yes or no, where babysitting means taking care of children while parents are away from home due to leisure activities) and additional jobs besides au pair (yes or no). Moreover, violence at work included: physical violence by the host children (yes or no), verbal offenses (yes or no) and violence at the workplace (yes or no, where violence at the workplace means physical violence or sexual harassment by the host family).

Finally, socio-demographic characteristics included sex (male, female), age (18–21, 22–24, 25–28 years), higher level of education (yes or no, where "yes" means at least one year at a higher education institution), region of origin (Spain, Colombia, Mexico and Central America, and South America without Colombia), region of residence in Germany (northern, southern, eastern, or western), settlement of residence in Germany ("towns" <100,000 inhabitants, "minor cities" 100,000–500,000 inhabitants, "major cities" >500,000 inhabitants) and follow up times (T0 = baseline measure; T1 = 1-month; T2 = 6-month follow up).

2.4. Statistical Analysis

Data analysis was performed with SPSS® version 25.0 (IBM, Armonk, NY, USA). First, in the descriptive analysis, we compared participants who remained in the whole study, from T0 to T2, versus participants who dropped out during the follow-ups. Nominal and ordinal variables were described as absolute and relative frequencies. Secondly, for the bivariate analyses, we used Fisher's exact test to assess the association between sociodemographic characteristics and working conditions with depressive symptoms. In order to assess the association between the dependent variable depressive symptoms in T0 and T1 with T2, we used McNemar's test on paired data.

Finally, we implemented Generalized Estimating Equations (GEEs) to analyze the within-subject correlations throughout time [25]. This method is useful for longitudinal data, especially for discrete outcomes [26] and for "repeated measures using a common working correlation matrix for the longitudinal responses of each subject" [27]. Furthermore, GEEs include a semi-parametric regression-based strategy for handling missing completely random data in longitudinal studies due to dropouts during the follow-ups [25,28,29]. This strategy is commonly used when the probability density model for the measurement process is difficult to fully specify. Hence, GEEs work only with means and variances, and a common correlation matrix for the multivariate measurements instead of the distribution of the multivariate data [30]. The selected GEE adjusted model presented the lowest Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC).

3. Results

Most of the participants who remained in the study across all three time points were female (89.7%) and highly educated (86.0%). More than half of them were from Colombia (54.6%), followed by Mexico (22.7%). The prevalence of MDS was higher in participants who dropped out the study during follow-ups than in those who remained in the study (12.2% vs. 3.1%;). In addition, participants who dropped out tended to be younger (18–21 years) than those who remained in the study (47.3% vs. 30.9%). Regarding the remaining variables, there were no meaningful differences between the participants who were lost during the follow-ups and the participants who completed the study (Table 1).

Table 1. Descriptive data of participants who remained in the study through all three time points and the participants who dropped out of the study.

Characteristics		Participants	Dropouts	*p*-Value
		N = 99	*N* = 90	
		n (%)	*n* (%)	
Gender	Female	87 (89.7)	82 (89.1)	0.81
Age (years)	18–21	30 (30.9)	43 (47.3)	0.03
	22–24	44 (45.4)	25 (28.6)	
	25–28	23 (23.7)	22 (24.2)	
Higher education	Yes	80 (86.0)	68 (75.6)	0.09
Region of origin	Spain	10 (10.3)	8 (8.7)	0.54
	Colombia	53 (54.6)	40 (43.5)	
	Mexico and Central America	22 (22.7)	29 (31.5)	
	South America (w/o Colombia)	11 (11.3)	13 (14.1)	
Settlement of residence *	Towns	36 (38.3)	13 (41.2)	0.84
	Minor city	14 (14.9)	4 (17.6)	
	Major city	44 (46.8)	13 (41.2)	
Region of residence in Germany *	Northern	19 (20.5)	5 (12.5)	0.46
	Southern	33 (36.4)	10 (37.5)	
	Eastern	9 (9.1)	5 (12.5)	
	Western	31 (34.1)	10 (37.5)	
Working hours per week *	>40 h	16 (16.8)	4 (12.1)	0.59
Extra hours of babysitting *,#	Yes	62 (70.3)	21 (70.0)	0.82
Working on holidays *	Yes	31 (35.2)	11 (35.0)	0.87
Days off per week *	One day	26 (27.7)	11 (35.3)	0.37
	Two days	68 (72.3)	19 (64.7)	
Schedule's adaptation to social & family commitments *	Well	71 (80.7)	26 (85.5)	0.99
Au pair agency contract *	Yes	46 (52.3)	15 (50.0)	0.69
Additional job besides au pair *	Yes	10 (11.4)	5 (12.5)	0.53
Violence at work *	Yes	8 (5.7)	1 (2.5)	0.55
Physical violence by the host children *	Yes	26 (29.9)	10 (32.5)	0.73
Verbal offenses *	Yes	20 (23.0)	10 (33.0)	0.50
Depressive symptoms	DS-	73 (73.4)	64 (71.1)	0.07
	DS+	15 (15.3)	8 (8.9)	
	ODS	8 (8.2)	7 (7.8)	
	MDS	3 (3.1)	11 (12.2)	

T0 = Baseline measure; T1 = 1-month follow-up; T2 = 6-month follow-up. Participants: those who remained in the study through all three time points. Dropouts: those who dropped out of the study during the follow-ups. * Variables assessed from T1 to T2 (dropouts *N* = 31). DS-: no reported depressive symptoms. DS+: at least one of the required screening symptoms is fulfilled, but the total symptom score is below the threshold diagnosis. ODS: Other Depressive Syndrome: 2–4 reported depressive symptoms and one of the symptoms is depressed mood or anhedonia. MDS: Major Depressive Syndrome: ≥5 reported depressive symptoms and one of the symptoms is depressed mood or anhedonia. # Taking care of children while parents are away from home due to leisure activities.

The prevalence of depressive symptoms over time was 27.6% at baseline, 28.1% at the first follow-up and 26.5% at the second follow-up. In the bivariate results, working more than forty hours per week, working on holidays, bad schedule adaptation to social and family commitments, violence at work, physical violence by the host children and verbal offenses were associated with depressive symptoms (Tables 2 and 3).

Table 2. Prevalence of Depressive Symptoms (PHQ-9) among Spanish-speaking au pairs living in Germany at T2 = 6-month follow-up (N = 99) by potential risk factors.

Characteristics		Depressive Symptoms #	*p*-Value
		n (%)	
Gender	Female	24 (27.3)	0.99
	Male	2 (25.0)	
Age (years)	18–21	8 (26.7)	0.80
	22–24	13 (29.5)	
	25–28	5 (20.8)	
Higher education	No	2 (15.4)	0.51
	Yes	21 (25.9)	
Region of origin	Spain	4 (40.0)	0.22
	Colombia	17 (32.1)	
	Mexico and Central America	4 (18.2)	
	South America (w/o Colombia)	1 (8.3)	
Settlement of residence	Towns	11 (28.9)	0.81
	Cities	15 (25.0)	
Region of residence in Germany	Northern	4 (20.0)	0.85
	Southern	10 (28.6)	
	Eastern	3 (33.3)	
	Western	9 (26.5)	
Working hours per week	≤40 h	18 (22.8)	0.05
	>40 h	8 (44.4)	
Extra hours of babysitting *	No	4 (19.0)	0.57
	Yes	22 (28.6)	
Working on holidays	No	13 (19.1)	0.02
	Yes	13 (43.3)	
Days off per week	One day	9 (33.3)	0.44
	Two days	17 (23.9)	
Schedule's adaptation to social & family commitments	Bad	13 (56.5)	0.01
	Well	13 (17.3)	
Au pair agency contract	No	12 (25.0)	0.82
	Yes	14 (28.0)	
Additional job besides au pair	No	23 (26.4)	0.99
	Yes	3 (27.3)	
Violence at work	No	22 (24.4)	0.02
	Yes	3 (100.0)	
Physical violence by the host children	No	11 (16.9)	0.01
	Yes	14 (51.9)	
Verbal offenses	No	14 (20.3)	0.02
	Yes	9 (45.0)	

p value calculated with Fisher's exact test. * Taking care of children while parents are away from home due to leisure activities. # Depressive Symptoms: includes DS+, ODS, and MDS.

Table 3. Statistical analysis using the McNemar test between the dependent variable depressive symptoms in T0 and T1 with T2 follow-ups (N = 99).

Depressive Symptoms [#]		T2		*p*-Value
		No	Yes	
		n (%)	*n* (%)	
T0	**No**	61 (82.4)	13 (17.6)	0.83
	Yes	11 (45.8)	13 (54.2)	
T1	**No**	61 (83.6)	12 (16.4)	0.99
	Yes	11 (44.0)	14 (56.0)	

p value calculated with McNemar. T0 = Baseline measure; T1 = 1-month follow-up; T2 = 6-month follow-up. [#] Depressive symptoms: includes DS+, ODS and MDS.

The adjusted GEE model showed an association between working more than forty hours per week, experiencing physical violence from the host children, and having bad schedule adaptation to social and family commitments with depressive symptoms. Au pairs who worked more than forty hours per week were about three times more likely to experience depression than those who did not (odds ratio [OR]: 3.47; 95% confidence interval [95%CI]: 1.46–8.28). In addition, those exposed to physical violence were almost five times more likely to suffer from depression than those who were not (OR: 4.95; 95% CI: 2.16–9.75). Finally, au pairs who had bad schedule adaptation to social and family commitments had twice the risk of depression than those who did not (OR 2.24; 95% CI: 0.95–5.28) (Table 4).

Table 4. Generalized estimating equations (GEEs) for depressive symptoms (N = 189).

Characteristics		Crude OR	Adjusted OR
		(95% CI)	(95% CI)
Working hours per week	≤40 h	1	1
	>40 h	2.88 (1.32–6.28)	3.47 (1.46–8.28)
Extra hours of babysitting *	No	1	N/A
	Yes	1.88 (0.32–11.09)	
Working on holidays	No	1	1
	Yes	2.66 (1.25–5.66)	1.50 (0.71–3.18)
Days off per week	One day	1	N/A
	Two days	0.67 (0.30–1.49)	
Schedule's adaptation to social & family commitments	Good	1	1
	Bad	1.31 (1.34–8.20)	2.24 (0.95–5.28)
Au pair agency contract	No	1	N/A
	Yes	1.70 (0.71–4.05)	
Additional job besides au pair	No	1	N/A
	Yes	0.68 (0.23–2.02)	
Violence at work	No	1	N/A
	Yes	0.78 (0.13 −4.49)	
Physical violence by the host children	No	1	1
	Yes	5.34 (2.33–12.21)	4.95 (2.16–9.75)
Verbal offenses	No	1	1
	Yes	4.38 (1.91–10.06)	1.63 (0.66–4.03)
Follow-up time [+]	T0	1	1
	T1	1.08 (0.73–1.58)	1.05 (0.53–1.50)
	T2	0.99 (0.61–1.61)	0.81 (0.42–1.58)

* Taking care of children while parents are away from home due to leisure activities. OR: odds ratio; CI: 95% confidence interval. Adjusted for working hours per week, working on holidays, schedule's adaptation, physical violence, verbal offenses and follow-up times. [+] Follow-up times: T0 = Baseline measure; T1 = 1-month; T2 = 6-month follow-up.

4. Discussion

This study investigated predictors of depressive symptoms among a cohort of 189 Spanish-speaking au pairs living in Germany along three follow-ups. The results showed a high prevalence of depressive symptoms among the au pairs included in the study. Moreover, the observed data support the hypothesis of an association between different working conditions (job demands) and individuals' mental health. Specifically, working more than forty hours per week, bad schedule adaptation to social and family commitments and suffering physical violence from the host children were associated with marked risk increments for depressive symptoms.

The observed high prevalence of depressive symptoms is in consonance with the 20% prevalence of depression among migrant workers in Europe observed in a large-scale review including data from all EU member states [31]. These results coincide, as well, with the 29% prevalence of depressive disorders among Turkish migrants [32], and 45% prevalence of distress among Latin American migrants in Germany [9] reported in previous studies.

In addition, previous studies have shown that au pairs often suffer from poor working conditions. For instance, Sollund and colleagues reported that au pairs in Norway normally exceeded the legal working hours [1], while another study reported that one out of three au pairs work more than 30 h per week [33]. Moreover, an investigation from Ireland observed that 26% of au pairs worked between 40 and 60 h per week [34]. Furthermore, in a study by O'Connor et al., poor mental health, including depressive symptoms, among Latin American migrants were associated with poor working conditions, violence at work and a low level of education, among other factors [35]. Similar results have also been yielded by Vahabi et al., where overwork was related to a higher prevalence of depression among this population [36]. Furthermore, Carlos and Wilson mentioned that 67% of live-in caregivers (a population comparable with au pairs), presented poor mental health due to overload and overtime work [37,38]. Moreover, the above-mentioned Irish study revealed that 21% of au pairs in that study did not receive regular breaks, 15% had to be 'on call' at night, 27% worked on Sundays and 30% reported not getting any holidays [34]. Therefore, 36% of au pairs faced stress and 51% claimed the situation was worse than they expected due to overwork [34]. All these conditions, such as lack of privacy, individuals' powerlessness to have control over their living–working conditions and overwork increased poor mental health and the prevalence of depression among au pairs [36]. In total, all these results support the findings of the present study.

Furthermore, physical violence by the host children was associated with depressive symptoms among Spanish-speaking au pairs in this study. This finding is in line with another study reporting that live-in caregivers suffered stress due to lack of social and family support, disobedience from children, work overload, overtime and lack of permanent residency status, among other factors [39]. Furthermore, an ethnographic research paper in England reported that some au pairs suffered physical violence at the hands of the host children because they did not accept the au pair as caretaker, which might contribute to stress [40].

Regarding the longitudinal assessment, depressive symptoms did not show a noteworthy change over time. Based on the comparison of the prevalence of MDS of the participants who dropped out during the follow-ups (12.2%) and those that remained (3.1%), we assume that au pairs who faced poor working conditions and developed depressive symptoms might have returned to their country of origin before finishing the au pair year (the so-called healthy migrant effect) [16,41]. This assumption matches observations from Hondagneu-Sotelo who described that Latin American au pairs find it difficult or risky to express their concerns due to cultural differences [42]. Hence, host families and au pairs avoid discussions about difficulties and problematic situations and decide instead to terminate the au pair contract [42]. Moreover, in an earlier cross-sectional study, experienced Spanish-speaking au pairs presented more than two times the prevalence of MDS and almost two times the prevalence of depressive syndromes than the newcomers [15].

Therefore, it can be assumed that the present results might represent an underestimation of the true degree of depressive symptoms among au pairs.

The strengths of this study include the longitudinal approach that evaluated how the symptoms of depression faced by the au pairs changed over the time. Secondly, the main inclusion criteria of being a "newcomer au pair" allowed us to determine the pre-existing depressive symptoms among the participants and to identify the variation in their symptoms over time. Third, the internet-based sampling method (conventional and Facebook snowball sampling) helped to reach a dispersed and vulnerable population (e.g., migrants), and to increase the geographical scope and sample size [43]. According to Baltar and Brunet, sampling via social media is more successful (77% response) than conventional snowball (42% response) [44]. Fourth, incentives (shopping vouchers worth five euros) ensured the fulfilment of the online surveys and prevented dropouts during the follow-ups [45]. Fifth, the application of the Spanish version of the internationally standardized instruments allowed the comparison of this study with other international studies [46]. Finally, the authors chose the GEE model to analyze the within-subject correlations over time [25]. This is one of the most suitable methods for longitudinal studies with discrete outcomes [26]. Furthermore, GEE includes a semi-parametric regression-based strategy for handling missing data, thus avoiding the imputation data process [28].

This study, nevertheless, presents some limitations. The non-random sampling method did not allow the calculation of a response rate and the representativeness of the study population could not be estimated. According to Rothman et al., findings are distinguished by the empirical goal of understanding a phenomenon (longitudinal studies) and the practical goal of applying this information to a specific population (cross-sectional studies) [47]. To rely on descriptive results as in cross-sectional studies, researchers should have a representative sample. However, these descriptive results cannot justify how a human behavioral phenomenon works. Understanding a phenomenon is based solely on controlled comparisons, not population representativeness. Therefore, in this study, we aimed to identify potential risk factors associated with depressive symptoms over time, rather than focusing only on describing the study population and their generalization.

Another limitation of this study was the selection of exclusively Spanish-speaking au pairs as study population. Therefore, the results may not be transferable to au pairs from other countries. Finally, as this study took a quantitative approach, we recommend further qualitative research to identify moods, feelings and possible indicators of depressive symptoms that were not included in this study.

Based on the 80 percent loss of participants with MDS between two and six months of stay in Germany, we assume that the initial two months of the au pair program are the most critical for developing depressive symptoms. Therefore, we recommend that au pair organizations carry out interventions before and during the second month. Interventions with the host families should clarify the roles, obligations and duties of au pairs, as well as the mutual benefits acquired. Authorities and au pair organizations may monitor whether au pairs are working a maximum 30 h per week, are given adequate time to attend language classes and have at least one full free day per week [48]. Finally, especially for au pairs who are not linked to any organization, we recommend psychological counseling and focus groups led by authorities as well as experienced au pairs. This may create a safe atmosphere for au pairs outside of their workplace (host family) and prevent poor mental health.

5. Conclusions

As we hypothesized, overwork, bad schedule adaptation to social and family commitments and physical violence from the host children were identified as potential risk factors for depressive symptoms among Spanish-speaking au pairs living in Germany. This scenario contradicts the definition of au pair, which itself means 'at par,' 'at equal shares' or 'on mutual terms.' However, these associations did not change over time. Most of the au pairs who presented depressive symptoms dropped out the study in the early phase. We assume that they returned to their home countries.

This knowledge could be of interest for future au pairs as well as for policy makers, au pair agencies and host families. Together, they could improve awareness and monitoring of working conditions, implement intervention strategies and ensure appropriate guidance before and during the au pair program.

Finally, we expect that this study will provide valuable information for au pair agencies to support their participants before they go to the host country, to prevent poor mental health and to create "fair-work" au pair programs.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethical Committee of the Medical Faculty at the Ludwig Maximilian University of Munich (project number 18-139, date of approval 17.05.2018).

Informed Consent Statement: This study obeys the rules of confidentiality and data protection. All the information will be kept confidential and will be used only for scientific purposes in the study. In order to maintain the study anonymous, we will ask to you to create an identification code with three numbers and three letters at the beginning of the survey. The surveys will be stored separated from the personal information as e-mail addressed. The participation in this study is voluntary and you can refuse to answer a question at any stage or end the questionnaire completely. Also, you can abandon the study at any time and without giving any rea-son. To abandon the study, you should send an e-mail (bernarda454@hotmail.com). The data will be storage 10 years. Bernarda Espinoza M.Sc. will have access to the interview data, code, and the e-mails addresses. The directors of the study, Katja Radon, Tobias Weinmann, Rossana Mendoza López will have access to the interview data. In case of publication of the study results, the confidentiality of personal data is guaranteed. I have read and accept the terms and conditions.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to data protection (Art. 26 BayDSG).

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Bernarda Cristina Espinoza Castro

Name of doctoral candidate

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Title of dissertation

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I hereby confirm that the extent of my contribution (content-related and volume) in the publication submitted is stated truthfully.

Bernarda Espinoza

Signature doctoral candidate

By signing, the following **co-authors** confirm that:

- the extent of their contributions (content-related and volume) in the publications submitted, and
- their agreement to the submission of the publications.

Name of co-author	Extent of contribution (content-related and volume)	Signature of co-author
1. Tobias Weinmann	Conceptualization, validation, resources, writing-review and editing, supervision.	Tobias Weinmann
2. Rossana Mendoza López	Conceptualization, validation, formal analysis, supervision.	Rossana Mendoza
3. Katja Radon	Conceptualization, validation, resources, writing-review and editing, supervision, project administration.	Katja Radon
4.		
5.		
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9.		
10.		

Please list further authors on a separate page

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Complete list of my publications

A. Espinoza-Castro, B., Weinmann, T., Mendoza López, R., & Radon, K. (2021). Working Conditions as Risk Factors for Depressive Symptoms among Spanish-Speaking Au Pairs Living in Germany—Longitudinal Study. International Journal of Environmental Research and Public Health, 18(13), 6940.

B. Gidi, N.W., Suraya, A., Mutayoba, B. et al. Proceedings from the CIHLMU occupational safety and health symposium 2019 “Protecting workers’ health: global challenges and opportunities in work-related respiratory diseases”. BMC Proc 14, 14 (2020). https://doi.org/10.1186/s12919-020-00197-x

C. Espinoza-Castro, B., Weinmann, T., Mendoza López, R., & Radon, K. (2019). Major depressive syndrome (MDS) and its association with time of residence among Spanish speaking au-pairs living in Germany. International journal of environmental research and public health, 16(23), 4764.

D. Espinoza-Castro, B., Vásquez Rueda, L.E., Mendoza Lopez, R.V. et al. Working Below Skill Level as Risk Factor for Distress Among Latin American Migrants Living in Germany: A Cross-Sectional Study. J Immigrant Minority Health 21, 1012–1018 (2019). https://doi.org/10.1007/s10903-018-0821-7