Prevalence and risk-factors for depression in elderly Turkish and Moroccan migrants in the Netherlands

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Abstract

Background: Western societies host increasing number of elderly labour migrants from Turkey and Morocco. The article studied the prevalence of clinically significant depressive symptoms among elderly Turkish and Moroccan migrants compared with native Dutch elderly and if differences in prevalence rates were explained by known risk factors for depression and/or ethnic, migration-related factors.

Methods: 330 Turkish, 299 Moroccan, and 304 Dutch elderly (55–74 years) were interviewed (cross-sectionally) using the Center for Epidemiologic Depression Scale (CES-D). Potential risk factors included sex, income level, marital status, ethnic origin, chronic physical illnesses, limitations in daily functioning, migration and acculturation questions.

Results: The prevalence of self-reported depressive symptoms (CES-D \( \geq 16 \)) was very high in elderly migrants, 33.6\% for Moroccan and 61.5\% for Turkish elderly. The prevalence of depressive symptoms in the native Dutch sample was similar to earlier studies in the Netherlands and abroad: 14.5\%. Among migrants education and income level was very low and they had a high number of physical limitations and chronic medical illnesses. This only explained part of the ethnic differences found. In all three samples, depressive symptoms were associated with sex, chronic physical illness and physical limitations. In multivariate analysis, ethnic origin was uniquely associated with the presence of clinically significant depressive symptoms. Only a small number of remigration and acculturation items were associated with depressive symptoms in bivariate analysis.

Conclusions: The prevalence of clinically significant depressive symptoms among elderly migrants from Turkey and Morocco in the Netherlands is very high. Ethnicity was a strong independent risk factor.

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Keywords: Late life depression; Elderly; Labour migrants; Turkey; Morocco; Prevalence; Risk factors

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1. Introduction

During the 1960s and 1970s, large groups of labour migrants came from Turkey and North Africa to the continent of Europe. At the time it was not foreseen they would settle and stay in their host countries. In 2000, 3% (3.900) of the elderly population of Amsterdam was of Moroccan and 1% (2.200) of Turkish descent (Van Zee et al., 2000). These figures will double during the next decades, which mean that 8% of the elderly will be of Turkish or Moroccan descent in the near future.

Given the impact of depression on well-being, functioning, the use of healthcare sources and mortality, and given the fact that depression is a treatable disorder in many cases, important public health gains may be possible (Beekman et al., 1999; Charney et al., 2003). Knowledge about the epidemiology of late life depression in elderly migrants may help deciding whether special health or prevention programmes are necessary and whether there are specific risk groups among elderly from Turkish or Moroccan descent. However, little is known about the prevalence and the risk factors of depression among older labour migrants that came to the continent of Europe. It may be expected that the prevalence of late life depression among elderly migrants will be higher because known demographic and health-related risk factors for depression are overrepresented among labour migrants. Elderly migrants from Turkey and Morocco reported a poorer health and higher use of health care. Their educational and occupational levels as well as their household income were low (Reijneveld, 1998). Earlier studies showed that in migrants prevalence rates of psychiatric disorders were higher than in the native population. Prevalence rates of psychotic disorders in the Netherlands in young (male) migrants from Morocco were high (Schrier et al., 2001; Selten and Sijben, 1994). Moreover, 33% of young adult migrants in the Netherlands suffered from minor psychiatric disorders (Bengi-Arslan et al., 2002).

The aim of this exploratory study was to study the prevalence and risk factors for depression in Turkish and Moroccan elderly living in the community in the Netherlands. The research questions of this study were:

1. Which is the prevalence of depression among elderly Turkish and Moroccan migrants and is it higher compared with native Dutch elderly?
2. Are differences in prevalence rates explained by known risk factors for depression such as age, sex, demographic, health-related, income and social variables or are specific ethnic factors associated with depression in elderly Turkish and Moroccan migrants?
3. Is there an influence of migration-related factors on the prevalence of depression within the groups of Turkish and Moroccan migrants?

2. Methods

2.1. Sample and procedure

Participants of this study were recruited as part of a cross-sectional health survey among the Amsterdam population, which was conducted by the municipal health service of the city of Amsterdam in the period October 1999–June 2000. This survey aimed to obtain insight into the state of public health in Amsterdam, especially focusing on differences in health perspective between native Dutch, Turkish and Moroccan (elderly) migrants. A random sample of non-institutionalised people was drawn from the Amsterdam municipal population register, aged 16 years and older. The sample was stratified by age, sex and descent (16–24, 25–34, 35–44, 45–45, 55–64, 65–74). This report focuses exclusively on the Dutch, Turkish and Moroccan elderly (55–64, 65–74). Interviewers were matched to respondents on the basis of ethnic origin and gender. Respondents were interviewed in their native language.

In total, there were 2673 participants aged 16 years and older. Interviewers followed standard procedures to establish contact with respondents and administered the number of participants that were contacted. Response rates among the Turkish and Moroccan participants had to be partly estimated from information provided by the interviewers afterwards, because not all Turkish and Moroccan interviewers registered their approaches accurately. The most conservative estimate shows that 43% of the eligible Turkish and Moroccan participants were respondents. More optimistic response rates show that response rates for the Turkish participants was 87% and for Moroccan elderly
73%. The real response rate will be somewhere between the most conservative and optimistic estimate. The response rate among the Dutch population was 61%.

The analyses reported in this paper are restricted to 933 respondents from Dutch (304), Turkish (330) and Moroccan (299) descent aged 55–74 years.

2.2. Measuring depression

Depression was measured using the Center for Epidemiologic Depression Scale (CES-D) (Radloff, 1977). This scale has been widely used in older community samples, and has good psychometric properties in older samples. It has been translated into at least 15 languages and is by far the most widely used instrument for epidemiological research. The Dutch translation had similar psychometric properties in samples of elderly in the Netherlands (Beekman et al., 1994). The overlap with symptoms of physical illness has been shown to be minimal in a number of studies (Berkman et al., 1986; Foelker and Shewchuk, 1992). Translated versions for Turkish and Moroccan elderly had good psychometric properties (reliability and validity) and was acceptable for these elderly (Spijker et al., 2004). The CES-D generates a total score which can range from 0 to 60. In order to identify respondents with levels of depression which are clinically relevant, we used the generally used cut-off score ≥16. The criterium validity was excellent in a previous study among elderly in the community in the Netherlands (Beekman et al., 1997). In accordance with Radloff, the entire CES-D scale was considered invalid if all items were answered ‘always’ or ‘never’ or if five or more items were missing (Radloff, 1977; Radloff and Teri, 1986). In case respondents were unable to provide a response to one to four items, the mean item score was used for the missing items (Radloff and Teri, 1986).

2.3. Independent variables

A number of known risk factors for late life depression were incorporated (Beekman et al., 1995; Bruce, 2002). Sociodemographic information included sex, age, level of education (none, low, middle or high), income level (above poverty level versus on/below poverty level), and marital status (married versus not or no longer married).

Ethnic origin was assessed by the country of birth of the respondent and the country of birth of the respondent’s parents. If the respondent or their parents were born in Turkey or in Morocco, the respondent’s ethnicity was considered Turkish or Moroccan, respectively.

Chronic physical diseases were assessed by questions on 14 most common somatic disorders based on an earlier survey by the Central Bureau of Statistics (CBS) (Werkgroep Revisie POLS-Gezondheidsenquete 1999, 1999). Limitations in daily functioning were assessed by the OESO indicator (van Somsbeek, 1988), a scale for activities of daily living (ADL) (Kempen et al., 1997; Deeg and Hoeymans, 1997; Werkgroep Revisie POLS-Gezondheidsenquete 1999, 1999) and questions on instrumental activities of daily living (IADL) (Fillenbaum, 1985).

As it is hypothesized that prevalence and risk factors differ between ethnic subsamples, it is of importance to study the influence of acculturation and attitudes regarding remigration. Acculturation is defined as the cultural changes migrants undergo due to the influence of living in their host county (Redfield et al., 1936). Phinney (1992) describes acculturation as the process by which a person’s ethnic-cultural position or identity changes. Due to the acculturation process, several aspects of a person’s ethnic-cultural identity changes: their ethnic self-identification, their orientation towards the native or host culture, and the amount of (social) contacts a person has with either the ethnic population or inhabitants from the host country. As appropriate measurement instruments were not available, a scale was developed by the Institute of Social Medicine of the University of Amsterdam. This scale consists of 20 questions assessing the three aspects of a person’s ethnic-cultural identity (Martens, 1999; van den Reek, 1998; Kemper, 1996). For the present studies, the items of the scale were dichotomised and used to assess the association between acculturation and the prevalence of depressive symptoms. The ideas respondents had on their wishes and possibilities for remigration were assessed by five questions. The answers to these questions also have been dichotomised and used in the analysis.
2.4. Data analysis

Descriptive statistics including mean age, education and income level were computed to describe the study sample. The prevalence of clinically relevant levels of depressive symptoms was calculated using the cut-off of ≥16 on the CES-D. Bivariate associations with independent variables were assessed by calculating odd ratios. For these analyses, all independent variables were dichotomised. 95% confidence intervals were calculated in all cases. When the 95% confidence interval did not include 1, the association was regarded to be statistically significant. The odds obtained were compared across three ethnic groups. If the OR of one group was outside the 95% confidence interval of the other group, this was considered a statistically significant difference.

Stepwise logistic regression was used to achieve independent predictive ability, correcting for the confounding influence of interrelated risk factors.

3. Results

3.1. Characteristics of the sample

Due to the sampling procedure, ethnic and age groups were evenly represented (Table 1). The sample of non-institutionalised elderly migrants differed from native Dutch elderly on a number of characteristics. The level of education and income was in Turkish and Moroccan elderly extremely low compared to the native Dutch elderly (p<0.001). Turkish and Moroccan elderly suffered from physical limitations more frequently than the native Dutch population (p<0.001). The number of chronic physical illnesses was comparable in the Moroccan and native Dutch elderly, but higher in the Turkish elderly. Turkish and Moroccan elderly were more often married than the native Dutch elderly. Moroccan elderly had a lower income level and suffered from more physical limitations more than Turkish elderly (p<0.05). The number of Moroccan elderly with chronic illnesses was less than in the Turkish elderly (p<0.05).

The overall level of significant depressive symptoms in the total sample was high (38.1%). This high prevalence was due to the prevalence of marked depressive symptoms among the Turkish and Moroccan elderly.

3.2. Prevalence

In Table 2, the prevalence rates are presented by age, sex and ethnic group. The prevalence of clinically significant depressive symptoms was very high in
elderly migrants and highest in the Turkish sample. The odds for the presence of clinically significant depressive symptoms in the Turkish and Moroccan sample compared to the native Dutch elderly was 9.42 (95% CI 6.36–13.95) and 3.56 (95% CI 2.39–5.30), respectively. Turkish elderly had more clinically significant depressive symptoms compared to the Moroccan elderly (OR 2.64 (95% CI 1.90–3.66). The lowest prevalence rates were found in Dutch male, especially in the older sample (65–74 years). Prevalence rates in the oldest Turkish women were the highest. Differences in prevalence rates between Turkish and native Dutch elderly were highly significant in all strata (p<0.001). Apart from the younger Moroccan, differences were also significant between Moroccan elderly migrants and native Dutch elderly (p<0.05). Turkish elderly had more significant depressive symptoms compared to Moroccan elderly in all strata (p<0.05). In the youngest age category, Turkish and Moroccan women had more clinically significant depressive symptoms than men (p<0.05), while in Dutch women this difference was not significant. In the oldest age category, difference was significant for Dutch women and men (p<0.001), while for the Turkish and Moroccan sample it was not.

3.3. Risk factors

In all three samples, depressive symptoms were associated with the following variables: sex, chronic physical disorders and physical limitations (Table 3). The association with physical limitations was significantly stronger in the Dutch and Moroccan sample as compared with the Turkish migrants. In the Dutch sample, the association with female sex was significantly stronger as compared to the Turkish and Moroccan sample. Remarkably, no association could be established between income level and depressive symptoms in any of the samples. The relation between level of education and depression could not be assessed among the Turkish and Moroccan due to the lack of variability (>95% lowest level, Table 1). In the Dutch and Moroccan sample, more people living alone had clinical significant depressive symptoms. In the Dutch and Turkish sample, not being married was significantly associated with the presence of depressive symptoms.

The association between ethnic origin and depression remained strong after correcting for potential confounders in a multivariate analysis (B=2.11, S.E.=0.24, p<0.001). Female sex, chronic physical illnesses and physical limitations were also uniquely associated with the presence of clinical significant depressive symptoms.

Within the Turkish and Moroccan groups, surprisingly few of the remigration and acculturation items

Table 2
The prevalence of clinically significant depressive symptoms by age, sex and ethnic group

<table>
<thead>
<tr>
<th>Age</th>
<th>Dutch</th>
<th>Turkish</th>
<th>Moroccan</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>All</td>
<td>Male</td>
</tr>
<tr>
<td>N</td>
<td>135</td>
<td>169</td>
<td>304</td>
<td>164</td>
</tr>
<tr>
<td>55–64</td>
<td>13.6%</td>
<td>20%</td>
<td>16.9%</td>
<td>47.2%</td>
</tr>
<tr>
<td>65–74</td>
<td>2.6%</td>
<td>20.2%</td>
<td>12.8%</td>
<td>64.4%</td>
</tr>
<tr>
<td>Totals</td>
<td>304</td>
<td>330</td>
<td>933</td>
<td></td>
</tr>
</tbody>
</table>

Table 3
Odds ratios of depressive symptoms in native Dutch, Turkish and Moroccan migrants for independent variables

<table>
<thead>
<tr>
<th></th>
<th>Dutch</th>
<th>Turkish</th>
<th>Moroccan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female 3.14 (1.49–6.63)</td>
<td>1.77 (1.12–2.81)</td>
<td>1.84 (1.14–2.97)</td>
</tr>
<tr>
<td>Income level</td>
<td>Low level 0.96 (0.4–2.32)</td>
<td>0.83 (0.50–1.38)</td>
<td>0.75 (0.40–1.40)</td>
</tr>
<tr>
<td>Marital status</td>
<td>Not married 2.13 (1.10–4.10)</td>
<td>2.52 (1.29–4.91)</td>
<td>1.83 (0.97–3.44)</td>
</tr>
<tr>
<td>Living condition</td>
<td>Living alone 2.50 (1.29–4.85)</td>
<td>1.52 (0.73–2.38)</td>
<td>2.56 (1.45–4.52)</td>
</tr>
<tr>
<td>Physical limitations</td>
<td>Yes 3.08 (1.30–7.31)</td>
<td>1.76 (1.05–2.94)</td>
<td>3.08 (1.30–7.31)</td>
</tr>
<tr>
<td>Chronic medical illnesses</td>
<td>One or more 3.22 (1.22–8.48)</td>
<td>3.41 (1.78–6.51)</td>
<td>2.87 (1.53–5.38)</td>
</tr>
</tbody>
</table>
had a significant association with depressive symptoms. In Table 4, only items are shown that had a significant association with the presence of depressive symptoms in bivariate analyses. For the Turkish migrants, only five items were significantly associated with depressive symptoms: having been in Turkey for once or more for a period >3 months in the last 5 years, not having the opportunity to return to Turkey, having negative reasons for not returning to the home country (for example not having the financial possibilities), speaking Dutch with friends and buying food in shops of their home country. For the Moroccan sample only, having more contact with Moroccan people than native Dutch people, and the conviction that men need to take decisions on investments was associated with CES-D scores >16 points.

### 4. Discussion

To our knowledge, this is the first study on the prevalence and risk factors on depression in elderly Turkish and Moroccan labour migrants in Europe. The most important finding was that prevalence for clinically relevant depressive symptoms in elderly migrants was much higher than in native Dutch elderly, respectively, 33.6% and 61.5% of the Moroccan and Turkish elderly had self-reported depressive symptoms. Especially among Turkish elderly, the prevalence of depressive symptoms was significantly higher, not only compared to the Dutch sample, but also to the Moroccan elderly. The prevalence in the Dutch sample was comparable to earlier studies (Beekman et al., 1999). The prevalence of clinically significant symptoms among Dutch elderly in the Longitudinal Aging Study Amsterdam (LASA) was 14.9%. In the present study, the prevalence of depressive symptoms among native Dutch elderly was 14.5% (Beekman et al., 1995).

Psychosocial risk factors like medical illness and injuries; disability and functional decline; and lack of social contact are important risk factors for late-life depression (Bruce, 2002). Elderly migrants differed in their risk factors from the native Dutch population on a number of points and showed some similarities. Foremost was their level of education and income extremely low compared to the native Dutch elderly. Due to lack of variability, the influence of education 

<table>
<thead>
<tr>
<th>Items</th>
<th>Turkish (n=330)</th>
<th>Moroccan (n=299)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having been in home country for &gt;3 months in the last 5 years once or more</td>
<td>65.7% (184)</td>
<td>34.2% (88)</td>
</tr>
<tr>
<td>Experiencing to have the possibility to return to home country</td>
<td>45.8% (82)</td>
<td>56% (61)</td>
</tr>
<tr>
<td>Having positive reasons for not returning to home country</td>
<td>90.4% (178)</td>
<td>93.6% (175)</td>
</tr>
<tr>
<td>Speaking Dutch with friends</td>
<td>77% (211)</td>
<td>88.3% (211)</td>
</tr>
<tr>
<td>Buying food in shops from host country</td>
<td>24.1% (75)</td>
<td>23.6% (69)</td>
</tr>
<tr>
<td>Having more contact with native Dutch than with Turkish/Moroccan</td>
<td>99.3% (272)</td>
<td>99.6% (269)</td>
</tr>
<tr>
<td>Decisions on investments best be taken by husband</td>
<td>25.3% (78)</td>
<td>28.9% (79)</td>
</tr>
</tbody>
</table>

Percentages (%, n) based on number of participants who answered item accordingly, using valid numbers.
on the prevalence of depressive symptoms could not be assessed. Poor social circumstances like low income have been associated with the occurrence of depression in Somali and Bengali elderly immigrants (Silveira and Ebrahim, 1998). Low income did not reach a significant association in our analyses. Poor social circumstances like low income may be influenced by preventive interventions, like increasing the social support. The Turkish and Moroccan migrants suffered from physical limitations more often than the native Dutch elderly. The number of chronic illnesses was in the Moroccan sample comparable to the native Dutch elderly. Turkish elderly suffered from chronic medical illnesses more often than both the Moroccan elderly and the native Dutch sample.

Both bivariate and multivariate analysis showed that physical limitations and chronic medical illnesses had a strong, independent association with depression in all ethnic strata. The association between physical limitations and depressive symptoms was stronger in the Dutch and Moroccan sample than in the Turkish elderly.

Prevention and treatment of medical illnesses and physical impairments seems therefore to be of major importance, both from a clinical perspective as well as from a public health perspective. The Turkish and Moroccan elderly were more often married than the native Dutch elderly. Being unmarried had an association in the bivariate analysis with depression in the Dutch and Turkish sample, but not in the Moroccan, although it nearly reached significance in that sample.

Although Turkish and Moroccan suffered from risk factors associated with depression much more frequently, these risk factors only partly explained the higher prevalence of depressive symptoms. Ethnic origin was a strong independent factor associated with the presence of clinically significant depressive symptoms. The precise cause for the high prevalence of depressive symptoms among the Turkish and Moroccan elderly cannot be established from this study. Only a limited number of risk factors for depression could be assessed in this study. Future studies should assess a wider array of factors related to depression, to try clarifying the precise nature of this ethnic factor further. The higher prevalence of depressive symptoms in Turkish compared to Moroccan elderly cannot be resolved from this study. This is even more remarkable given the fact that the Moroccan elderly more often suffered from a low income than the Turkish sample. Earlier research showed that Turkish patients have a tendency to aggravate symptoms (Ulusahin et al., 1994). One may hypothesize that the phenomenon of aggravation artificially heightens scores on the CES-D for Turkish elderly stronger than for Moroccan elderly, but no concluding remarks can be made on this point.

Our findings substantiate results from other studies on migrants in the Netherlands and abroad. Although previous studies did not exclusively focus on elderly Turkish and Moroccan migrants, a strong association between ethnicity and self reported longstanding psychiatric illnesses comes forward (Schrier et al., 2001; Bayard-Burfield et al., 2001; Bengi-Arslan et al., 2002; Silveira et al., 2002). It is tempting to hypothesize that acculturation and remigration problems are related to the higher prevalence of depressive symptoms in elderly migrants. Surprisingly, few of the acculturation and remigration items in our study had a significant association with the presence of depressive symptoms. Thereby differences occurred between Turkish and Moroccan elderly in the bivariate analyses on the items that were associated with depression. It may be that less acculturated Turkish and Moroccan migrants are overrepresented in our study and that their exposure to the risk factors both associated with poverty and depression is high.

4.1. Strengths and limitations

Strong points of the present study were that it was community based, including a large, representative, age- and sex-stratified sample, using validated instruments. Interviews took place by interviewers speaking the native language, using translated instruments. The possibility of an ethnic bias in responses to health questions remains open. The expression and subjective experience of depression is culture-bound (Angel and Thoits, 1987). In previous work, Turkish patients with (melancholic) depression were more frequently preoccupied with somatic complaints than German and English patients, although core depressive symptoms were identified in all samples (Ebert and Martus, 1994; Ulusahin et al., 1994). Depression and physical impairment may exhibit similar symptoms, causing artificially raised correlations. If
present, this effect is probably limited, as the CES-D was designed to predominantly measure affective symptoms (Radloff, 1977). Because all data were based on self-report without a diagnosis made in a clinical interview, there is no conclusive way to rule out either report or recall bias. Furthermore, it must be stressed that no validated cut-offs for the CES-D are available for Turkish and Moroccan elderly. In order to compare the outcomes in the elderly migrants with the native Dutch elderly, we choose to use the international validated and accepted cut-off for the CES-D of 16 points. Further research on the validity of this cut-off for elderly Turkish and Moroccan migrants is required, especially regarding its criterium validity.

Another limitation is that the study was cross-sectional. Therefore, no cause–effect relations can be established. Factors associated with depression may have antedated (or caused) the disorder, but also may be its consequence. The relatively low-response rate in our sample among Turkish elderly is supported by experiences abroad (Ertan et al., 1999). Usually, the more frail and depressed elderly are lost to epidemiological studies. The effect of selection bias may therefore play a role, so it can be assumed that the real prevalence of depressive symptoms among Turkish and Moroccan elderly will even be higher.

Only a limited number of risk factors were assessed and prevalence of depressive symptoms was only based on self-report symptoms. Risk factors associated with depression like experiences of loss, neuroticism, a low level of social support, life events and biological factors associated with late life depression were not measured.

5. Conclusions

Our study shows that the presence of depressive symptoms in elderly migrants is very common. Given the known impact of depression on well-being, morbidity and mortality, further studies need to explore the aetiology of depression in elderly migrants. Clinicians, both in primary care and in specialised mental health centres, should become more alert on depression in elderly migrants. Intervention studies need to be performed in Turkish and Moroccan migrants to see whether known therapeutic measures like antidepressants and psychotherapy are effective as they are in Western populations. The patterns of association that came forward from our study can be used as tentative indications for etiologic differences and for generating important research questions for the future.

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