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Demographic and socio-economic factors associated with psychological distress among migrants in Australia: Results from the 2015 National Health Survey

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Conflict of interest

The authors declare to have no conflicts of interest.

Abstract (250 words)

Purpose: To disentangle the complex relationship between migration and mental health, we examined differences in psychological distress within migrant groups, between migrant groups and mainstream populations, and demographic and socioeconomic status (SES) factors associated with psychological distress.

Methods: Using data from the Australian 2015 National Health Survey, which measures psychological distress via the Kessler Screening Scale for Psychological Distress (K10), we calculated the prevalence of psychological distress, disaggregated by birthplace, language, demographic, and SES factors. Multivariable logistic regression models were fitted to examine the association between country of birth and psychological distress.

Results: There were 14,466 individuals ≥ 18 years who completed the K10. Migrants from Italy (20.7%), Greece (20.4%), Southern and Eastern European (18.2%), and North African and Middle Eastern (21.9%) countries had slightly higher point estimates of distress compared to Australian born (12.4%). After adjusting for demographics, SES factors, duration in Australia, and comparing within migrant groups, individuals from India (OR=2.61 95% CI 1.58, 4.31), Southern and Eastern Europe (excluding Greece and Italy) (OR=3.05 95% CI 2.09, 4.45), North Africa and the Middle East (OR=3.28 95% CI 2.03, 5.31), and Southern and Central Asia (OR=3.35 95% CI 1.88, 5.96) had the highest estimates of distress.

Conclusions: Prevalence of psychological distress varies when SES resources are adjusted, revealing hidden vulnerabilities among 'healthy' migrant communities. Identifying such

communities can aid mental health policy-makers and service providers provide targeted culturally appropriate care.

Keywords

Migrants; psychological distress; prevalence, socio-economic factors

Introduction

With over 244 million international migrants in 2015, the contemporary scale of migration is unprecedented[1]. Migration poses many challenges for the individual migrant as well as the settlement country, including in mental health. For the individual, migration can have a positive or negative effect on mental health depending on demographic and cultural variables, migration trajectories, and settlement processes in the settlement country. For settlement countries, record influxes of culturally diverse migrants place significant social, economic, and psychological stress on their systems and societies[2].

Understanding the psychological risks and exposures associated with each phase of migration (pre, during, post) as points for intervention, alongside the specific vulnerabilities of humanitarian migrants has been a growing focus of research and policy[3]. In parallel is the ‘healthy migrant’ paradox, which posits that healthy people are more likely to migrate than unhealthy individuals because of immigration filtering criteria such as health status, economic earning potential, educational qualifications and/or sponsorship[4,5]. Often used to explain why new migrants tend to have better overall health than local populations in their settlement countries, recent studies contradict the ‘healthy migrant’ hypothesis[6-8]. For example, Liddell et al.[8] found that depression and migrant status are independently associated with increased functional disability but not necessarily with each other ($p = 0.012$).

To disentangle the complex relationship between psychological distress and migration, accurate and disaggregated data is critical and new population-based approaches are needed[1,9]. Only then can decision makers be supported to develop integrated, evidence-based policies for service delivery[1]. Thus, our aim was to investigate differences in psychological distress within migrant groups, between migrant groups and local populations, and the demographic and socio-economic factors associated with psychological distress. We used data from the Australian National Health Survey (NHS). With 27 per cent of Australians born overseas, the NHS represents a cross-sectional sample of one of the most culturally diverse nations on earth, more so than the United States (US), Canada, and New Zealand where overseas-born migrants comprise 14, 22, and 23 per cent of the overall population respectively[10].

Methods

Data

The 2015 NHS was conducted by the Australian Bureau of Statistics (ABS) between July 2014 and June 2015. The purpose of the NHS was to collect nationally representative data on health risk factors and the health status of the Australian population.

The NHS design selected households throughout Australia at random using multi-stage sampling techniques. Within each household, one adult (aged 18 or over) and one child (aged under 18) were randomly selected for interview. Of 17,723 households originally contacted, 14,723 responded, yielding a response rate of 82%. The final dataset consisted of 19,259 people

living in 14,723 households. The NHS is a repeated cross-section survey with seven surveys completed since 1989-90.

As the NHS is a survey of persons in private dwellings, excluded from the analysis are people living in non-private dwellings, people whose usual place of residence was outside Australia, visitors to private dwellings, diplomatic personal, members of non-Australian military forces, and those living in very remote areas of Australia.

The ABS has the authority to collect these data under the Census and Statistics Act 1905. Respondents were neither paid for participation nor offered any other inducements. The authors accessed unit record data from the NHS using the Remote Access Data Laboratory (RADL) from the ABS. Authors were granted access to confidentialised data under an agreement between Universities Australia and the ABS.

Measures

The key variables used in this study included psychological distress and measures of country of birth and language spoken at home. The specific measure of psychological distress used was the Kessler Psychological Distress Scale (K10)[11], which has robust cross-cultural validity[12]. Analogous with previous studies, we indicate a 'high' or 'very high' score on Kessler's measure as indicating psychological distress[13-15]. These cut-offs were selected based on the recommended scoring by the ABS and were dichotomised consistent with guidelines on the level of distress associated with clinically significant mental health

disorders[16]. The K10 instrument was only collected from persons ≥ 18 years. This reduced the full sample size from 19,257 to 14,560 records. In a small number of cases, the ABS did not ask ($n=49$) or could not determine a K10 score ($n=45$). This left a final sample size of $n=14,466$ individuals from unique households (i.e., one person per household) with complete responses on the K10 measure.

A key advantage of the NHS accessed through RADL is the very detailed measures of country of birth and main language spoken at home. Most ABS datasets including the NHS released as the basic confidentialised unit record file (CURF) (as opposed to RADL), concatenated measures of country of birth into a trivariate categorical variable. In contrast, the NHS RADL dataset includes 19 country of birth groups and nine main language groups. Measures on the respondent's country of birth were classified according to the Standard Australian Classification of Countries[17]. The main language spoken at home was likewise classified using the Australian Standard Classification of Languages[18].

Statistical Model and Estimation of Variance

To examine differences in the prevalence of psychological distress by birthplace we present weighted tests of proportions, with a 95% critical value. To examine the association between country of birth and psychological distress we fitted multivariable logistic regression models. Using the raw logit coefficients, we calculated odds ratios (OR) that measure the change in the odds of experiencing psychological distress given a change in birthplace, once all other factors in the model are controlled for. Previous studies have shown that the odds of psychological

distress differ by a range of demographic and socio-economic characteristics such as gender, age, education, marital status, employment and health conditions[19-22].

Specifically, we use the regression results to calculate four odds ratios:

Unadjusted odds ratios, which measure the change in the odds of experiencing psychological distress given a change in birthplace, with no adjustments for the individuals' demographic or socio-economic characteristics.

Odds ratios adjusted for demographic factors, including age (single years of age) and sex (male or female).

Odds ratios adjusted for demographic variables (per 2 above) as well as socio-economic factors such as social marital status (married, defacto, not married), education (university, other post-school education, no post-school education), employment status (employed, unemployed, not in the labour force) and number of long-term health conditions (continuous).

Odds ratios adjusted for demographic and socio-economic factors, as well as year of arrival in Australia. As year of arrival in Australia is perfectly correlated with the Australian born population, this model excludes the Australian born from the analysis. The population born in the United Kingdom (UK) are used as the reference birthplace group.

Each block of variables were entered into the regression and improvement to model fit assessed using the Bayesian Information Criteria following Raftery's procedure[23]. With all models specified, we checked the conditioning of the matrix of independent variables to investigate any collinearity influence[24]. The condition numbers and variance inflation factors were small providing support for the model specification. Final goodness-of-fit for the logistic regression

models was confirmed using the Hosmer and Lemeshow test[25]. All analyses were conducted using Stata Version 15 (Stata Corporation, 2017).

Results

Table 1 displays summary sample characteristics for each birthplace and language group in Australia. Reflective of Australia's migration history, the largest birthplace groups after Australia (68%), are the UK (6.6%) and New Zealand (2.9%). This is mirrored in the high proportions of respondents reporting English as the main language spoken at home (87.3%).

Of the single country Non-English-Speaking Background (NESB) birthplaces, India (2.3%), China (2.0%), Philippines (1.3%) and Viet Nam (1.1%) are reported by a significant proportion of respondents. Of the non-English language groups, Eastern (3.1%) and Southern (2.8%) Asian languages feature predominately, followed by South East Asian (1.9%) and Southern European languages (1.7%).

There is considerable variation in the demographic and socio-economic characteristics by birthplace and language group. For example, compared to the Australian born, the Indian born tend to be younger and are more likely to be married, employed, with a post-school education and fewer long-term health conditions. Accounting for such variations in underlying demographic and socio-economic characteristics of the individual is important as previous research shows they are associated with psychological distress[19-21,8].

[INSERT TABLE 1]

Given variations in demographic and socio-economic characteristics, it is expected that we would observe considerable heterogeneity in reports of psychological distress by birthplace and language group (Table 2). 12.4% of the Australian born were estimated to be in psychological distress. While most birthplaces are equal or slightly lower than the Australian born level, persons born in Italy (20.7%), Greece (20.4%), Southern and Eastern European (18.2%), and North African and Middle Eastern (21.9%) countries appear to have slightly higher point estimates of distress. This is reflected in elevated estimates of distress by language group for those speaking Southern (18.4%) and Eastern (18%) European languages as well as those speaking Southwest and Central Asian languages (22.4%).

[INSERT TABLE 2]

Although variations in distress prevalence by country of birth and language group are informative, it is also important to understand the role of the differing demographic and SES characteristics of these groups in explaining the likelihood of experience of distress. Unadjusted and adjusted odds ratios from a multivariable logistic regression analysis of psychological distress are presented in Table 3. Four models for birthplace and language group (eight in total) are presented for unadjusted (model 1), adjusted by demographic (model 2 - age and sex), adjusted by demographic and SES factors (model 3) and a migrant only model adjusted by demographic and SES factors (model 4).

Birthplace results

Comparing odds ratios across models 1 and 2, there is considerable consistency in the direction, level and patterns of significance for measures of both country of birth and language group. Those born in the UK (OR=0.77 95% CI 0.62, 0.95), North Western Europe (OR=0.43 95% CI 0.24, 0.75) and South-East Asia (OR=0.51 95% CI 0.32, 0.80) were between 23% and 57% less likely to be in distress relative to Australians, with demographic controls included. In contrast, those born in Italy (OR=1.61 95% CI 1.01, 1.09), Southern and Eastern Europe (OR=1.8 95% CI 1.36, 2.37) or North Africa and the Middle East (OR=1.84 95% CI 1.27, 2.66) were between 1.6 and 1.84 times more likely to be in distress relative to Australians. With controls for demographic factors, there were no other significant differences in distress by birthplace, relative to the Australian born.

[INSERT TABLE 3]

Once controls for differential SES are included, the significance of the parameter estimates remains relatively consistent, with the exception of several countries. With controls for the higher propensity to have a post-school education, to be married, and have fewer long term health conditions, there are no differences between South-East Asian born and Australian born with respect to the odds of distress ($p=0.458$). Similarly, with controls for the higher average age and number of health conditions of those born in the UK, there are no differences in the odds or psychological distress relative to Australians ($p=0.263$). Importantly, once we account for differential SES, certain country groups become more likely to be in psychological distress.

For example, when controls are added for the higher labour force participation and higher propensity of Indian migrants to be married and with a higher education, they are about 1.8 times more likely to be in psychological distress, relative to Australians (OR=1.83 95% CI 1.20, 2.78). To be clear, given an Australian with the same demographic and SES characteristics, we observe a higher propensity to be in distress for the Indian born. A similar effect is also apparent with those born in Southern and Central Asia (OR=2.27 95% CI 1.38, 3.73). With controls for lower levels of education, employment, and an increased number of average long-term health conditions, Greek born migrants were about 2.6 times more likely to report distress, relative to the Australian born (OR=2.59 95% CI 1.39, 4.83).

Restricting the sample to the migrant population and controlling for length of residence in Australia (model 4), the results are highly comparable. In this model, with the Australian born omitted, those born in the UK are the reference category. This was chosen for two reasons. Firstly, those born in the UK are the largest migrant group in Australia; and secondly, this population are predominately English language speakers with no difference in distress relative to Australians once controls are included (Model 3), albeit with a lower unadjusted level of distress (Model 1). As expected, the patterns, direction and significance of odds ratios remain highly comparable between models 3 and 4. Apart from the strengthening of some odds ratios, the only change in significance is for North-West Europe, which is the broader geographic area in which the UK is situated. With controls included, there was no difference in the likelihood of psychological distress between the UK born and other North-West Europeans (OR=0.64 95% CI 0.34, 1.20).

Language results

Results by language group broadly replicate these results. The odds ratios unadjusted (model 1) and adjusted for demographic factors (model 2) are again consistent. Relative to those whose main language at home is English, those whose language is Southern European (OR=1.57 95% CI 1.10, 2.25), Eastern European (OR=2.28 95% CI 1.51, 3.44) or Southwest and Central Asian (OR=1.99 95% CI 1.31, 3.02) are more likely to be in distress. Conversely, those speaking Southern Asian (OR=0.59 95% CI 0.39, 0.89) or Southeast Asian languages are less likely to report distress (OR=0.44 95% CI 0.26, 0.76). However, once controls for SES are included (model 3), the odds ratios measuring the Southeast Asian population are no longer significant and the Southern Asian group are marginally more likely to report distress at the 90% level (OR=1.51 95% CI 0.98, 2.33). Those with Southern and Eastern European as well as Central Asian language speaking households remain more likely to report distress. Restricting the analysis to the migrant only group and controlling for duration in Australia, the results are highly comparable (Model 4). The odds ratios for the Southern Asian languages group strengthens and becomes significant at the 95% level (OR=1.99 95% CI 1.23, 3.22).

Discussion

These findings have policy and service implications. First, by enumerating the national prevalence of psychological distress in migrant communities, low rates of psychological distress are revealed among those born in the UK, North Western Europe, China and South-East Asia, and high rates among those born in Greece, India, Eastern Europe, North Africa and the Middle East, and Southern and Central Asia. While, migrants overall experience similar

rates of psychological distress to settlement country populations[21,26], illuminating variability in prevalence within migrant communities' highlights vulnerabilities in particular communities where more targeted services may be offered.

Often these vulnerabilities are 'hidden' as communities characterized by large numbers of economic migrants are assumed healthy. Supporting previous evidence[8] our data also complicate the 'healthy migrant' hypothesis[4,5] by revealing high rates of psychological distress among 'healthy' migrant communities (e.g. Indians, Greeks) even after SES is held constant. Previous research[8] also found incongruities between their data and the healthy migrant effect, noting among first-generation migrants low prevalence rates for common mental disorder but high rates of functional disability, relative to locally-born and second-generation migrants. Though we cannot illuminate the association between common mental disorders and functional disability, we recognise that prevalence is influenced by complex interactions between psychological distress, disabling mental health symptoms, and function in everyday life, alerting us to the need to explain the relationship between protective and risk factors for psychological distress.

Controlling for SES and demographics it remains unclear what factors mitigate psychological distress in Chinese communities or what risk factors predispose Indian and Greek migrants to higher rates of distress. All three communities tend to have a higher SES status, especially when compared to other migrant groups such as those from North Africa and the Middle East, which also have high rates of psychological distress. Yet only the Chinese communities appear to lower rates of psychological distress compared to Australians, contrary to previous work[22]. This may be due to sampling discrepancies or it may be due to protective factors

such as religious belief and observance, younger age at migration, better English proficiency, a higher sense of personal control, stronger social support and higher self-efficacy[27]. However, it remain unclear the extent to which risk factors – separated familial and cultural ties[19], limited opportunities in one’s preferred occupation[20], pre-migration trauma, migration and acculturation[28] – override these protective factors and why psychological distress is increased in some communities but not others.

Finally, our results describe how to grapple with measurements issues in this area. There is considerable heterogeneity in distress within as well as between aggregate country groups oftentimes employed such as the trivariate measure: locally born, NESB and ESB. By disaggregating by country of birth, language spoken at home, and duration of residence, our analyses concurs with best-practice recommendations for what should be included in any analyses of mental health in migrant communities[29]. Homogenizing migrant groups into single category variables or focusing predominantly on NESB/ESB misses the fundamental point that neither are all migrants the same nor that all discrepancies in psychological distress should be reduced to lack of English proficiency. Rather as we have shown in our analyses, especially when controlling for SES, language is less significant for most groups at high unadjusted as well as adjusted risks of distress (excepting those with European and Central Asian language speaking households).

Limitations

One limitation of this study is the cross-sectional design and we cannot and do not attribute a causal relationship between country of birth, language, years lived in Australia and the

likelihood of psychological distress. A second limitation relates to country of birth sample size and country level aggregation. Although the NHS provides measures of birthplace that are more detailed than many other studies, problems of aggregation persist and it we might expect considerable differences in the demographic and SES characteristics as well as the propensity to be in psychological distress for countries aggregated as regions. Related to this issue, a variable measuring visa type could improve our understanding of distress. For example, are people who entered Australia on a humanitarian visa more likely to be in distress, relative to those who entered on skilled or family migration visa types? A third limitation of the NHS is the use of family members as interpreters to collect data from respondents from NESB. On the one hand, it is important that this latest survey took steps to include NESB, unlike previous national surveys that have largely excluded NESB. On the other hand, the use of family members as interpreters may have biased responses around psychological distress, as has also been shown in clinical consultations for mental health conditions[30].

Conclusion

Results illuminate the complex relationship between birthplace, demographic, and SES in relation to psychological distress in settlement countries. These are important facilitators of more targeted policy development and service provision. Determining the prevalence of distress within particular migrant communities provides important substrate on which to build and explore factors such as service's effectiveness, cultural salience, and continuity of care, critical ingredients required to bridges the gap between service need and access to services to ensure mental health equity for all.

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