J Immigrant Minority Health (2015) 17:1670–1678
DOI 10.1007/s10903-014-0131-7

ORIGINAL PAPER

Examining Pre-migration Health Among Filipino Nurses

A. B. de Castro · Gilbert Gee · Kaori Fujishiro · Tessa Rue

Published online: 11 November 2014

Abstract The healthy immigrant hypothesis asserts that immigrants arrive in the receiving country healthier than same race/ethnic counterparts born there. Contemporary research, however, has not evaluated pre-migration health among migrants, nor has explicitly considered comparisons with non-migrants in the country of origin. Pre-migration health was examined among 621 Filipino nurses, including self-reported physical health, mental health, health behaviors, and social stress. Measures were compared by intention to migrate and also tested as predictors of actual migration using time-to-event analysis. Nurses intending to migrate had higher proportion of depression and reported higher general perceived stress compared to those not. Predictors of actual migration included age, mentally unhealthy days, social strain, and social support. Physical health and health behavior measures had no association with migration intention or actual migration. Findings suggest that, relative to those not intending to migrate, nurses intending to migrate have worse mental health status and social stress; and, do not have a physical health advantage. Future research must span the pre- to post-migration continuum to better understand the impact of moving from one country to another on health and well-being.

Keywords Philippines · Nurses · Health · Migration · Mental health

A. B. de Castro (✉)
School of Nursing and Health Studies, University of Washington–Bothell, Box 358532, Bothell, WA 98011-8246, USA
e-mail: BdeCastro@uwb.edu

G. Gee
School of Public Health, University of California, Los Angeles, Los Angeles, CA, USA

K. Fujishiro
Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Cincinnati, OH, USA

T. Rue
School of Public Health, University of Washington, Seattle, WA, USA

Background

Prevailing theory on immigrant health purports that immigrants are healthier than same race/ethnic counterparts born in the receiving country (the *healthy immigrant hypothesis*). An explanation for this is that immigrants bring with them a health advantage rooted in healthy social and behavioral characteristics of their country of origin [1–4]. This advantage, however, has been shown to decline with time in the receiving country [5–8]. Prior research suggests a variety of reasons for this health deterioration, such as adoption of unhealthy practices [7, 9–12], stressors associated with minority status [13–15], and socioeconomic and employment struggles [16–18].

Evidence in support of the healthy immigrant hypothesis is largely derived from data obtained *after* arrival in the receiving country that is cross-sectional. Moreover, conventional research utilizes same race/ethnic counterparts born in the receiving country as a comparison group. Little discussion is raised about health comparisons of migrants relative to non-migrants in the context of the sending country. Such a comparison necessitates a pre-migration migrant group and non-migrant group. Furthermore, consideration as to differences between migrants and non-migrants (in the country of origin) beyond measures of health status would provide additional insight about the

nature of any immigrant advantage. For example, migrants may represent a self-selecting group that has the ability to emigrate because of greater resources, thus reflecting associations between higher socio-economic status and better health [19].

Acknowledging that migration should be viewed on a continuum, a missing dimension to the healthy immigrant hypothesis is assessing health status prior to migration. This could provide insight into some critical questions. Are immigrants actually healthier than their native peers before they migrate? What pre-migration characteristics indicate better health status? Pre-migration health may offer a clearer reference against which post-migration health (and purported decline) can be evaluated. A principal challenge to fully examining immigrant health is enrolling study participants among a known group of migrants before departing the sending country, and conducting prospective data collection after arrival in the receiving country. To our knowledge, only two research endeavors have tracked study participants longitudinally from a pre-migration baseline—the Mexican Family Life Survey (MXFLS), which follows people from Mexico into the US [20], and a study following migrants from Russia to Finland [21, 22].

This present study examines pre-migration health status among a sample of nurses in the Philippines. The Philippines is a predominant supplier of migrant nurses to fill human resource shortages for health systems, primarily in developed countries, worldwide. For example, in 2008, the US Health Resources and Services Administration (HRSA) estimated that over 76,000 internationally educated nurses came from the Philippines; representing over 50 % of foreign nurses in the US [23]. Such migrating nurses might be presumed to be in good physical and mental health, but their pre-migration health has not been previously documented. We compare a variety of demographic and health-related indicators between nurses intending to migrate to another country and those not. We also examine these indicators as predictors of actual migration. We further note that focusing on a single occupation, reduces the possibility of confounding related to occupation, such as material resources or education level.

Methods

Participants

Our data come from a longitudinal study of nurses in the Philippines. Participants were recruited from nurses in Manila attending continuing education classes conducted by the Philippine Nurses Association or a private international nursing recruitment agency. These continuing education classes were subscribed to voluntarily, and, attendees paid a registration fee. A total of 621 attendees (68.3 % response rate) consented to participating in this study.

Data Collection

Between May and December 2008, at the end of a given continuing education class, attendees were offered the opportunity to complete a self-administered baseline survey. This survey was provided in English, which is widely used in professional and educational settings in the Philippines. Follow-up surveys were conducted using either a secure online survey system or a mailed hardcopy survey at 6–9 months (retention of 56.0 % for total sample, 56.5 % for those intending to migrate, and 55.0 % for those not intending to migrate) and 12–15 months (retention of 55.1 % for total sample, 55.7 % for those intending to migrate, and 54.0 % for those not intending to migrate) after the initial survey. Thus, the retention rates were very similar between those participants intending to migrate and those not.

Measures

At baseline, participants were asked a single-item question whether they were *intending to migrate to another country within the next 12 months*. Each follow-up survey asked whether they had *actually migrated* to another country.

We measured health across three broad dimensions—physical health, mental health, and health behaviors. These were further subdivided into more specific measures as described below.

Physical health was assessed using three categories of measures. *Subjective physical health* was measured with two single-item questions. Participants rated their current physical health compared to others of their same age (1 = poor, 5 = excellent) [24, 25], then recorded the number of days in the past month that their physical health was not good; items used in the CDC Behavioral Risk Factor Surveillance System [26]. *Chronic health conditions* was assessed using items from the Medical Outcomes Study [27–29]. Participants were provided a list of 17 chronic physical health conditions and identified which ones they know they have. The number of conditions was then summed. *Body mass index* was calculated based on self-reported height and weight using the conventional formula of [weight in pounds/(height in inches)^2] $\times$ 703.

Mental health was assessed using subjective mental health and depression. For *subjective mental health*, participants recorded the number of days in the past month that their mental health was not good, from the CDC Behavioral Risk Factor Surveillance System [26]. For *depression*, participants completed the 10-item version of

the Center for Epidemiological Studies-Depression scale, a widely used instrument to assess depressive symptoms [30–32]. In addition to using continuous individual scores, those reporting a score of 11 or above were classified as depressed [30].

Health behaviors was assessed by asking about *smoking* [lifetime history of smoking 100 or more cigarettes (yes or no)] and *alcohol consumption* (number of days consumed alcohol drinks in last 30 days) [26].

Three indicators of social stress were measured. *General perceived stress* was measured using the 4-item version of the Perceived Stress Scale (e.g., "In the last month, how often have you felt that you were unable to control the important things in your life?" 1 = never, 5 = very often) [33, 34]. *Social strain* was measured using the sum of two items: "How often do your relatives and children make too many demands on you? (0 = never, 3 = often)" and "How often do your family or relatives argue with you? (0 = never, 3 = often)?" *Social support* was measured by summing ratings of eight items [e.g., How much can you rely on relatives who do not live with you for help if you have a serious problem? (0 = not at all, 3 = a lot); "How much can you open up to friends if you need to talk about your worries?" (0 = not at all, 3 = a lot)]. Items for social strain and social support come from the National Latino and Asian American Study [35–37] and have been used in other studies [38–40].

Demographic information included *age*, *sex*, *marital status*, *education*, and whether *currently working as a registered nurse*. Lastly, *subjective social standing* was measured using a picture of a ladder with 10 rungs to depict hierarchal status, with an explanation that those best off in society are at the top rung (=9) and those worst off at the bottom rung (=0). Participants marked the rung corresponding to their self-assessment of their current level. This approach was developed by Adler and colleagues [41] and is used as an alternative to conventional measures of socioeconomic status (e.g., education, occupation, and income) [42–45]. Participants ranked their subjective social standing in relation to the community in which they reside and to the general population of the Philippines.

Analysis

Using data from a subset of pre-migration, baseline surveys, unadjusted, cross-sectional comparisons between participants responding as *not intending to migrate within 12 months* (n = 211) versus *intending to migrate within 12 months* (n = 563) were made across demographic characteristics. Additionally, adjusting for age and sex, comparisons were made for measures of physical health, mental health, health behaviors, and social stress. Continuous measures (e.g., *age*, *physically unhealthy days*) were assessed with linear regression, binary measures (e.g., *gender*, *smoking*) with logistic regression, and categorical measures (e.g., *marital status*, *education*) with multinomial logistic regression.

Using the entire sample (n = 621), pre-migration characteristics were investigated as predictors of actual migration using survival analysis techniques for interval censored time-to-event data. Exponential regression models were used to estimate associations between each of the above measures and actual migration, adjusted for age and sex. Turnbull estimates of the cumulative hazard function were estimated. While this analysis examined the occurrence of actual migration over time, intention to migrate only assessed at baseline was focused on, and not intention to migrate over time.

Study protocols were approved by the Human Subjects Division of the University of Washington.

Table 1 Demographic characteristics of sample by intention to migrate (unadjusted)

	Intending to migrate (n = 352) Mean (SD) or percent	Not intending to migrate (n = 211) Mean (SD) or percent
Age (years)*	26.1 (6.9)	24.8 (6.7)
Female	73 %	73 %
Marital status		
Married/living with partner	19 %	17 %
Separated/divorced/widowed	1 %	2 %
Never married	80 %	81 %
Education		
Yet to graduate from college	1 %	1 %
Completed undergraduate degree	94 %	91 %
Completed graduate degree	5 %	7 %
Currently working as RN		
Yes	34 %	28 %
No	54 %	58 %
Student nurse	12 %	14 %
Subjective social standing (0 = lowest, 9 = highest)		
In the community	5.8 (1.3)	5.7 (1.4)
In the Philippines	5.4 (1.4)	5.3 (1.4)
Actually migrated	10 %	0 %

Based on data from subset of the overall sample who responded to question *Are you intending to migrate to another country within the next 12 months?* (n = 563)

* $p < .05$

Table 2 Comparison of health- and stress-related measures by intention to migrate (adjusted for age and sex)

	Intending to migrate (n = 352) Mean (SE) or percent	Not intending to migrate (n = 211) Mean (SE) or percent
Physical health		
Self-rated physical health (1 = poor, 5 = excellent)	2.4 (.0)	2.5 (.1)
Number of physically unhealthy days in past month	3.1 (.3)	3.4 (.3)
Number of chronic health conditions (0 = none, 17 = most)	1.3 (.1)	1.4 (.1)
Body mass index (self-reported)	22.0 (.2)	21.9 (.3)
Mental health		
Number of mentally unhealthy days in past month	5.0 (.4)	4.3 (.5)
Depressed[a,*]	31 %	23 %
Health behaviors		
Smoker	13.7 %	13.7 %
Number of days consumed alcohol in last 30 days	1.3 (.2)	1.2 (.2)
Social stress		
General perceived stress* (4 = lowest, 20 = highest)	6.1 (.1)	5.7 (.2)
Social strain (0 = lowest, 6 = highest)	2.8 (.1)	2.9 (.1)
Social support (0 = lowest, 24 = highest)	16.5 (.2)	16.9 (.3)

Based on data from subset of the overall sample who responded to question *Are you intending to migrate to another country within the next 12 months?* (n = 563)

* $p < .05$

[a] Individuals with depression scale score of 11 and above classified as depressed

Table 3 Associations between pre-migration baseline characteristics and actual migration (adjusted for age and sex)

	Hazard ratio	p value
Intention to migrate	1.76	.17
Demographics		
Age (years)[a]	1.07	.00
Marital status (reference: Married)		
Widowed/Divorced/Separated	.49	.50
Never married	1.11	.81
Completed graduate degree	.61	.40
Currently working as RN	1.01	.99
Subjective social standing (community)	1.27	.08
Subjective social standing (Philippines)	1.22	.15
Physical health		
Self-rated physical health	.78	.29
Number of physically unhealthy days in past month	1.03	.50
Number of chronic health conditions	1.19	.12
Body mass index (self-reported)	1.05	.30
Mental health		
Number of mentally unhealthy days in past month	1.05	.03
Depressed	1.77	.14
Health behaviors		
Smoker	1.65	.37
Number of days consumed alcohol in last 30 days	.85	.32
Social stress		
General perceived stress	.97	.65
Social strain	1.32	.05
Social support	1.14	.00

Based on data from the overall sample (n = 621)

[a] Adjusted for sex only

Results

Table 1 shows unadjusted demographic comparisons of sample characteristics by intention to migrate. There were no statistically significant differences except for age. Those intending to migrate were, on average, 1.3 years older than those not ($p < .05$).

Table 2 compares physical health, mental health, health behaviors, and social stress, also by intent to migrate, adjusted for age and sex. Those intending to migrate were more likely to meet criterion for depressive symptomology and reported a higher score for general perceived stress. There were no statistically significant differences regarding any physical health and health behavior measures.

Over the study period, 35 (5.6 %) participants self-reported that they emigrated from the Philippines. Destinations included 20 to the Middle East, 6 to North America, 4 to the United Kingdom, 3 to North Africa, and 2 to Asia. Measures predicting actual migration, adjusted for age and sex, are listed in Table 3, with HRs provide a comparison of probability of migrating. For HRs greater than 1.0, a higher value of the respective predictor indicates a higher likelihood of migrating within the next 12–15 months. Intention was positively associated with actual migration, but not statistically significant (HR = 1.76, $p = .17$). Among demographics, age (HR = 1.07, $p < .05$) was the only significant predictor. No health measure was significantly associated with actual migration, except for mentally unhealthy days (HR = 1.05, $p < .05$).

Lastly, social strain (HR = 1.32, $p < .05$) and social support (HR = 1.14, $p < .05$) also predicted actual migration.

Discussion

This study offers a novel approach of examining a pre-migration dimension to the healthy immigrant hypothesis. Research supporting the healthy immigrant hypothesis has relied on cross-sectional or retrospective accounts comparing immigrants after arrival in the receiving country to same race/ethnic counterparts born in the receiving country. This study extends the literature by comparing intending migrants and non-migrants (in the country of origin) at a pre-migration point in time on a variety of physical health, mental health, and social stress measures.

Our data show that physical health—self-rated health, physically unhealthy days, chronic health conditions, and BMI—was not associated with intention to migrate or actual migration. A study by Rubalcava et al. [20] of Mexican migrants to the US also showed that physical health was only weakly predictive of migration. Our findings, too, suggest that, at a pre-migration baseline, migrants are not necessarily different in terms of physical health relative to those not intending to migrate. This questions the likelihood that exceptionally healthy people are self-selecting to migrate. We note that our sample consisted of nurses and nearly three-quarters female, who may have generally good health. Thus, the lack of significant difference observed may not hold for the general population. We are unable to compare our sample's health status with that of a general population sample in the Philippines because no national data were available with similar measures used for this study.

Our finding of no significant physical health difference expands conventional perspective on the healthy immigrant hypothesis. The typical frame of reference for the healthy immigrant hypothesis focuses on the post-migration context. Future studies should consider the migration continuum that migrants experience [46] and include measures that represent the pre-migration period. This would allow for a more complete picture and understanding of the dynamics driving the healthy immigrant hypothesis.

Regarding mental health, more of those intending to migrate can be classified as depressed compared to those not. Additionally, those who report more mentally unhealthy days at a pre-migration baseline also had a higher likelihood of actually migrating over the course of the next 12–15 months since entering the study. These findings raise a question as to how poorer mental health is related to migration, indicating possibly that migration may have adverse mental health implications.

Because migration involves impending dramatic life changes, it may be that leaving one's homeland may generate feelings of loss and worry that may then contribute to depression and other mental health issues. Moreover, an intending migrant may look unfavorably to life in the destination country, particularly if presenting a stark contrast to life in their country of origin (e.g., nurses migrating from the Philippines, which is overwhelmingly Roman Catholic, to a Muslim country in the Middle East; or, to Canada or the United Kingdom which have much colder climates). Or, an intending migrant may experience poor mental health symptoms because their present socioeconomic state compels them to seek employment abroad. These speculations point to the need for further research regarding the social, psychological, and economic contexts in the pre-migration stage. Alternatively, it is very much possible that a future in a destination country that might offer better opportunities and experiences relative to one's country of origin can present a more positive outlook. As such, what intending migrants are looking forward to (in addition to their concerns) can point to additional perspectives about how migration can positively influence health and well-being.

We did not find any previous reports investigating mental health status, specifically among intending migrants, prior to migration. Some studies have documented mental health problems among immigrants *after* arrival in the receiving country. Conditions such as depression, psychological distress, and substance use among Filipino immigrants have been found to be associated with racial/ethnic discrimination [47–49] and poor working conditions [50–52].

This interpretation is supported by our data showing that those intending to migrate reported more perceived stress at baseline. For example, exploring and securing employment opportunities abroad, navigating bureaucratic government processes for documentation and approval to migrate, making arrangements for family care during one's absence, obtaining needed fiscal resources, to name a few, may all operate as stressors. Interestingly, Jasinskaja-Lahti and Yijala [21] have put forward the notion of pre-acculturative stress in the context of migration. They assert that voluntary migrants start psychologically and behaviorally adjusting to life in the destination country and preparing for migration before actually doing so. Based on some form of pre-migration knowledge (e.g., contact with previous migrants through social networks), voluntary migrants formulate expectations about their post-migration experience (i.e., ability to adapt, encountering discrimination), which may be stressful. Our finding about perceived stress is consistent with this idea of pre-acculturative stress, a construct worth continued exploration in future research.

Reports of struggle and unfair treatment of migrant nurses in the receiving country have been well-documented [53–55]. For example, migrant nurses face challenges adapting to a new culture [56], transitioning into a healthcare workplace with unfamiliar expectations [57–61], navigating regulatory requirements for professional practice [62], struggling with communication [63], experiencing discrimination [64], dealing with emotional exhaustion and burnout [65], and feeling homesick [57]. These post-migration stressors are generally well-known among Filipino nurses through social and professional networks as well as through media reports chronicling nurse migrant stories. Thus, perceptions of working abroad may contribute to pre-migration stress.

We also found that both social strain and social support were related to actual migration. Social strain, operationalized as demands from family members and arguments with them, may be related to migration because migrant nurses are likely expected to remit or send material gifts back to family members and friends in the Philippines [66]. Possibly, those who have social support are more likely to migrate because they may have received financial and instrumental aid to assist with emigrating. And, relatives in the receiving country may facilitate migration. This suggests that to study migrants, the processes related to what they leave behind and where they are going should be considered. For many migrants, decisions are not made individually, but in collaboration with kinship members.

Ronquillo et al. [67] reported how Filipino migrant nurses in Canada noted familial pressures to pursue nursing as a profession and to emigrate. The authors point out that cultural expectations of obedience and obligation to family compound restrictions on personal choice in determining one's career path, such that the decision to pursue nursing was oftentimes made at the family level. Alonso-Garbayo and Maben [66] reported that, for internationally-recruited nurses, family, friend, and migratory networks both in the countries of origin and destination served as resources of social support during the migration transition. Such social support on both ends may be critically important to mitigate the risk for adverse consequences with respect to migrant nurses' mental well-being.

Limitations

Our findings should be viewed in light of some limitations. The study sample comes from those attending continuing education classes, therefore may not be representative of the overall Philippine nursing workforce or of migrants in general. While the sample was sufficient to conduct cross-sectional analyses comparing nurses intending to migrate and those not, including more comparison groups beyond nurses would have allowed for a multifaceted examination of differences across health measures. Furthermore, the sample was predominantly comprised of women, which may have contributed to any lack in variability among measures. However, since the project focused on nurses, this gender homogeneity is not surprising.

Using self-reported intention to migrate in the next 12 months may not have been a wholly stable variable upon which to split the sample into comparison groups. Migration intention may have subsequently changed in either direction, and would have classified participants as *not intending to migrate* if such intention was beyond 12 months from the time they responded.

Only 35 participants self-reported that they emigrated from the Philippines during the data collection period. Accordingly, longitudinal and multivariate analyses to identify factors predictive of migration (allowing to control for more variables) were limited. Had the data collection period been longer, more study participants may have actually migrated, thus increasing this number. One issue that may have hampered migration is the possibility of visa delays secondary to a processing backlog by the receiving country. Also, having retained only 55.1 % of participants throughout the entire 12–15 data collection period also likely limited capturing more actual migrants.

It should be noted that analyses utilized self-report data in response to survey items principally developed for native English speakers which may be subject to cultural differences in how respondents interpreted questions. Also, recall bias is a possibility given that several questions refer to experiences occurring at a previous point in time or asked about difficult, disturbing incidents. And, current income or financial strain was not measured, which could certainly be major motivators for migration.

Despite these limitations, this study attempts to expand perspective about the healthy immigrant hypothesis. To date, few studies have longitudinally followed emigrants, and rarely have included pre-migration data. Our study raises many important questions for future work, including verification patterns related to mental health as seen in other samples, the specific mechanisms that might underlie this purported relationship, and the trajectories that might be evident with longer periods of follow-up.

Conclusion

The health of immigrant populations has gained much attention given broader discussions of health disparities and social determinants of health. In particular, contemporary research has emphasized the healthy immigrant hypothesis to characterize observed health advantages that immigrants bring with them as they move from one country to another. However, this notion has not been fully examined because of the lack of

attention to health status prior to migration and to comparing migrants to non-migrants in the context of the sending country. A more thorough understanding of the healthy immigrant hypothesis, that considers the migration continuum from pre- to post-migration experiences, necessitates novel approaches and methods involving trans-national efforts. This study demonstrates the possibility of investigating the healthy immigrant hypothesis at a pre-migration baseline and presents an added perspective about immigrant health.

Additionally, findings from this study should be considered against the backdrop of the long history and continued practice of nurse migration from the Philippines. While concern over depletion of these much needed skilled healthcare workers has been voiced [68–70], attention to nurses' well-being in the receiving country also deserves attention. Their mental health status upon departing for work abroad may have ramifications on their ability to function optimally both in the work setting and in general society of the receiving country. This may increase the risk for adverse consequences with respect to migrant nurses' own mental health as well as, potentially, for quality patient care. Accordingly, the availability of resources and support systems that attend to the mental health needs of migrants may facilitate smoother transitions and enhance work performance. Employers, professional nursing organizations, immigrant social service agencies, and even community-based organizations (i.e., faith-based groups, civic ethnic groups, immigrant advocacy groups) in the receiving country can each play a helpful role in providing such services and establishing institutional or local policies sustaining them. Moreover, as suggested by the International Centre on Nurse Migration, programmatic and policy initiatives by receiving country governments that explicitly speak to fair and ethical treatment of foreign-recruited nurses can be instrumental in protecting their well-being.

Acknowledgments This study was supported by funds from the National Institutes of Health–National Center for Research Resources (Grant 5KL2RR025015), and, the Department of Psychosocial and Community Health, and Intramural Research Program (Van Hooser Research Fund) at the University of Washington School of Nursing. The authors wish to acknowledge the Occupational Health Nurses Association of the Philippines, Inc.; the Philippine Nurses Association; Mr. Eularito Tagalog; Ms. Anna Espano; Ms. Mercedes Castillo; Ms. Cecilia Rodriguez; Dr. Leah Primitiva G. Samaco-Paquiz; Dr. Teresita Barcelo; Dr. Annabelle Borromeo; and Mr. Arthur Cantos; for their assistance with this research. NIOSH disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

References

1. Blue L, Fenelon A. Explaining low mortality among US immigrants relative to native-born Americans: the role of smoking. Int J Epidemiol. 2011;40:786–93.
2. Greaney ML, Lees FD, Lynch B, Sebelia L, Greene GW. Using focus groups to identify factors affecting healthful weight maintenance in Latino immigrants. J Nutr Educ Behav. 2012;44:448–53.
3. Osypuk TL, Diez Roux AV, Hadley C, Kandula NR. Are immigrant enclaves healthy places to live? The Multi-ethnic Study of Atherosclerosis. Soc Sci Med. 2009;69:110–20.
4. Sanders AE. A Latino advantage in oral health-related quality of life is modified by nativity status. Soc Sci Med. 2010;71:205–11.
5. Antecol H, Bedard K. Unhealthy assimilation: Why do immigrants converge to American health status levels? Demography. 2006;43:337–60.
6. Frisbie WP, Cho Y, Hummer RA. Immigration and the health of Asian and Pacific Islander adults in the United States. Am J Epidemiol. 2001;153:372–80.
7. Gordon-Larsen P, Harris KM, Ward DS, Popkin BM. Acculturation and overweight-related behaviors among Hispanic immigrants to the US: the National Longitudinal Study of Adolescent Health. Soc Sci Med. 2003;57:2023–34.
8. McDonald JT, Kennedy S. Insights into the 'healthy immigrant effect': health status and health service use of immigrants to Canada. Soc Sci Med. 2004;59:1613–27.
9. Neuhouser ML, Thompson B, Coronado GD, Solomon CC. Higher fat intake and lower fruit and vegetables intakes are associated with greater acculturation among Mexicans living in Washington State. J Am Diet Assoc. 2004;104:51–7.
10. Ayala GX, Baquero B, Klinger S. A systematic review of the relationship between acculturation and diet among Latinos in the United States: implications for future research. J Am Diet Assoc. 2008;108:1330–44.
11. O'Loughlin J, Maximova K, Fraser K, Gray-Donald K. Does the "healthy immigrant effect" extend to smoking in immigrant children? J Adolesc Health. 2010;46:299–301.
12. Batis C, Hernandez-Barrera L, Barquera S, Rivera JA, Popkin BM. Food acculturation drives dietary differences among Mexicans, Mexican Americans, and non-hispanic Whites. J Nutr. 2011;141:1898–906.
13. Gee GC, Spencer M, Chen J, Yip T, Takeuchi DT. The association between self-reported racial discrimination and 12-month DSM-IV mental disorders among Asian Americans nationwide. Soc Sci Med. 2007;64:1984–96.
14. Gee GC, Ro A, Shariff-Marco S, Chae D. Racial discrimination and health among Asian Americans: evidence, assessment, and directions for future research. Epidemiol Rev. 2009;31:130–51.
15. Fuller-Thomson E, Noack AM, George U. Health decline among recent immigrants to Canada: findings from a nationally-representative longitudinal survey. Can J Public Health. 2011;102:273–80.
16. Lipscomb HJ, Loomis D, McDonald MA, Argue RA, Wing S. A conceptual model of work and health disparities in the United States. Int J Health Serv. 2006;36:25–50.
17. Agudelo-Suarez A, Gil-Gonzalez D, Ronda-Perez E, Porthe V, Paramio-Perez G, Garcia AM, Gari A. Discrimination, work and health in immigrant populations in Spain. Soc Sci Med. 2009;68:1866–74.
18. Crollard A, de Castro AB, Tsai JH. Occupational trajectories and immigrant worker health. Workplace Health Saf 2012; 60:497–502.
19. Kennedy S, McDonald JT, Biddle N. The healthy immigrant effect and immigrant selection: evidence from four countries: In: Social and economic dimensions of an aging population research papers. McMaster University, Hamilton, ON; 2006: 1–45.
20. Rubalcava LN, Teruel GM, Thomas D, Goldman N. The healthy migrant effect: new findings from the Mexican Family Life Survey. Am J Public Health. 2008;98:78–84.
21. Jasinskaja-Lahti I, Yijala A. The model of pre-acculturative stress—a pre-migration study of potential migrants from Russia to Finland. Int J Intercult Relat. 2011;35:499–510.

22. Mahonen TA, Leinonen E, Jasinskaja-Lahti I. Met expectations and the wellbeing of diaspora immigrants: a longitudinal study. Int J Psychol. 2013;48:324–33.
23. Health Resources and Services Administration, U.S. Department of Health and Human Services: findings from the 2008 national sample survey of registered nurses. Washington, DC: U.S. Government Printing Office; 2010.
24. Idler EL, Benyamini Y. Self-rated health and mortality: a review of twenty-seven community studies. J Health Soc Behav. 1997;38:21–37.
25. Singh-Manoux A, Martikainen P, Ferrie J, Zins M, Marmot M, Goldberg M. What does self rated health measure? Results from the British Whitehall II and French Gazel cohort studies. J Epidemiol Community Health. 2006;60:364–72.
26. Centers of Diseas Control and Prevention. Behavioral risk factor surveillance system survey data. Atlanta: U.S. Department of Health and Human Services; 2007.
27. Alonso J, Ferrer M, Gandek B, Ware JE, Aaronson NK, Mosconi P, Rasmussen NK, Bullinger M, Fukuhara S, Kaasa S, Leplege A. Health-related quality of life associated with chronic conditions in eight countries: results from the International Quality of Life Assessment (IQOLA) Project. Qual Life Res. 2004;13:283–98.
28. Stewart AL, Greenfield S, Hays RD, Wells K, Rogers WH, Berry SD, McGlynn EA, Ware JE. Functional status and well-being of patients with chronic conditions. Results from the Medical Outcomes Study. JAMA. 1989;262:907–13.
29. Ware JE. The status of health assessment 1994. Annu Rev Public Health. 1995;16:327–54.
30. Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). Am J Prev Med. 1994;10:77–84.
31. Bjorgvinsson T, Kertz SJ, Bigda-Peyton JS, McCoy KL, Aderka IM. Psychometric properties of the CES-D-10 in a psychiatric sample. Assessment. 2013;20:429–36.
32. Carpenter JS, Andrykowski MA, Wilson J, Hall LA, Rayens MK, Sachs B, Cunningham LL. Psychometrics for two short forms of the Center for Epidemiologic Studies-Depression Scale. Issues Ment Health Nurs. 1998;19:481–94.
33. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav. 1983;24:385–96.
34. Cohen S, Williamson G. Perceived stress in a probability sample of the United States. In: Spacapan S, Oskamp S, editors. The social psychology of health. Newbury Park: Sage; 1988. p. 31–67.
35. Alegria M, et al. Considering context, place and culture: the National Latino and Asian American Study. Int J Methods Psychiatr Res. 2004;13:208–20.
36. Alegria M, et al. Cultural relevance and equivalence in the NLAAS instrument: integrating etic and emic in the development of cross-cultural measures for a psychiatric epidemiology and services study of Latinos. Int J Methods Psychiatr Res. 2004;13:270–88.
37. Pennell BE, et al. The development and implementation of the National Comorbidity Survey Replication, the National Survey of American Life, and the National Latino and Asian American Survey. Int J Methods Psychiatr Res. 2004;13:241–69.
38. Lueck K, Wilson M. Acculturative stress in Asian immigrants: The impact of social cohesion and linguistic factors. Int J Intercultural Relations. 2010;34:47–57.
39. Mulvaney-Day NE, Alegria M, Sribney W. Social cohesion, social support, and health among Latinos in the United States. Soc Sci Med. 2007;64:477–95.
40. Schachter A, Kimbro RT, Gorman BK. Language proficiency and health status: Are bilingual immigrants healthier? J Health Soc Behav. 2012;53:124–45.
41. Adler NE, Epel ES, Castellazzo G, Ickovics JR. Relationship of subjective and objective social status with psychological and physiological functioning: preliminary data in healthy white women. Health Psychol. 2000;19:586–92.
42. Goodman E, Adler NE, Daniels SR, Morrison JA, Slap GB, Dolan LM. Impact of objective and subjective social status on obesity in a biracial cohort of adolescents. Obes Res. 2003;11:1018–26.
43. Adler N, Singh-Manoux A, Schwartz J, Stewart J, Matthews K, Marmot MG. Social status and health: a comparison of British civil servants in Whitehall-II with European- and African-Americans in CARDIA. Soc Sci Med. 2008;66:1034–45.
44. de Castro AB, Gee GC, Takeuchi DT. Examining alternative measures of social disadvantage among Asian Americans: the relevance of economic opportunity, subjective social status, and financial strain for health. J Immigr Minor Health. 2010;12:659–71.
45. Leu J, Yen IH, Gansky SA, Walton E, Adler NE, Takeuchi DT. The association between subjective social status and mental health among Asian immigrants: investigating the influence of age at immigration. Soc Sci Med. 2008;66:1152–64.
46. Tabor AS, Milfont TL. Migration change model: exploring the process of migration on a psychological level. Intl J Intercult Rel. 2011;35:818–32.
47. de Castro AB, Gee GC, Takeuchi DT. Relationship between job dissatisfaction and physical and psychological health among Filipino immigrants. AAOHN J. 2008;56:33–40.
48. Mossakowski KN. Coping with perceived discrimination: Does ethnic identity protect mental health? J Health Soc Behav. 2003;44:318–31.
49. Kim I, Spencer MS. Heavy drinking, perceived discrimination, and immigration status among Filipino Americans. Subst Use Misuse. 2011;46:1256–64.
50. de Castro AB, Gee GC, Takeuchi DT. Workplace discrimination and health among Filipinos in the United States. Am J Public Health. 2008;98:520–6.
51. Ayalon L. Suicidal and depressive symptoms in Filipino home care workers in Israel. J Cross Cult Gerontol. 2012;27:51–63.
52. Tsai JH, Thompson EA. Impact of social discrimination, job concerns, and social support on filipino immigrant worker mental health and substance use. Am J Ind Med. 2013;56:1082–94.
53. Manchester A. Filipino nurses suffer abuse and exploitation. Nurs N Z. 2005;11:12–3.
54. Do A. Filipino nurses win language discrimination settlement: In: Los Angeles Times; Sept 18, 2012.
55. Berger J, Filipino nurses, healers in trouble: In: New York Times; Jan 27, 2008.
56. Troy PH, Wyness LA, McAuliffe E. Nurses' experiences of recruitment and migration from developing countries: a phenomenological approach. Hum Resour Health. 2007;5:15.
57. Brunero S, Smith J, Bates E. Expectations and experiences of recently recruited overseas qualified nurses in Australia. Contemp Nurse. 2008;28:101–10.
58. Daniel P, Chamberlain A, Gordon F. Expectations and experiences of newly recruited Filipino nurses. Br J Nurs. 2001;10(254–256):258–65.
59. Jackson D. The multicultural workplace: comfort, safety and migrant nurses. Contemp Nurse. 1996;5:120–6.
60. Takeno Y. Facilitating the transition of Asian nurses to work in Australia. J Nurs Manag. 2010;18:215–24.
61. Tregunno D, Peters S, Campbell H, Gordon S. International nurse migration: U-turn for safe workplace transition. Nurs Inq. 2009;16:182–90.
62. Sochan A, Singh MD. Acculturation and socialization: voices of internationally educated nurses in Ontario. Int Nurs Rev. 2007;54:130–6.

63. Okougha M, Tilki M. Experience of overseas nurses: the potential for misunderstanding. Br J Nurs. 2010;19:102–6.
64. Hagey R, Choudhry U, Guruge S, Turrittin J, Collins E, Lee R. Immigrant nurses' experience of racism. J Nurs Scholarsh. 2001;33:389–94.
65. Al-Turki HA, Al-Turki RA, Al-Dardas HA, Al-Gazal MR, Al-Maghrabi GH, Al-Enizi NH, Ghareeb BA. Burnout syndrome among multinational nurses working in Saudi Arabia. Ann Afr Med. 2010;9:226–9.
66. Alonso-Garbayo A, Maben J. Internationally recruited nurses from India and the Philippines in the United Kingdom: the decision to emigrate. Hum Resour Health. 2009;7:37.
67. Ronquillo C, Boschma G, Wong ST, Quiney L. Beyond greener pastures: exploring contexts surrounding Filipino nurse migration in Canada through oral history. Nurs Inq. 2011;18:262–75.
68. Brush BL, Sochalsky JL. International nurse migration: lessons from the Philippines. Policy Polit Nurs Pract. 2007;8:37–46.
69. Lorenzo FM, Galvez-Tan J, Icamina K, Javier L. Nurse migration from a source country perspective: Philippine country case study. Health Serv Res. 2007;42:1406–18.
70. Perrin ME, Hagopian A, Sales A, Huang B. Nurse migration and its implications for Philippine hospitals. Int Nurs Rev. 2007;54:219–26.