International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 24 No. 1 Jun. 2016, pp. 210-216

http://www.ijisr.issr-journals.org/

A cross-sectional study of migration and chronic disease among health workers in Botswana

Lesego Selotlegeng[1], Lingzhong Xu[1], Livesey David Olerile[2], and Lesego Tswiio[3]

[1]Department of Social Medicine and Health Services Management, School of Public Health, Shandong University, Jinan, China

[2]The school of Pharmaceutical Sciences, Shandong University, 44 Wenhua Xi Road, Jinan 250012, China

[3]Zimbabwe Open University, P.O. Box MP1119, Mount Pleasant, Harare, Zimbabwe

ABSTRACT: In Botswana, health workers are emigrating to developed countries to seek better opportunities, which also affects their well-being. The aim of this study is to examine the relationship between international migration of health workers and chronic disease. This study involves both quantitative and qualitative data. Skype interviews were conducted with 128 health workers working abroad. The snowballing technique was used for forty-five returned health workers while a random sample size of health workers (n = 210) located in health facilities in Gaborone. Logistic regression models were used for analyzing the results. The majority of health workers abroad were in their prime working age. The health workers abroad were more likely to have hypertension (p = 0.01) than those who had returned. The relation between migration and chronic disease in Botswana emphasizes the need to focus not only on the psychological health consequences but also on potential chronic disease consequences.

KEYWORDS: migration, health workers, chronic health condition, health risk behavior, mental health condition.

INTRODUCTION

The shortage of health workers has prompted worldwide competition for their services, with the first world countries being in the lead to attract health workers from poor and developing countries [4]. Brain drain is described by previous authors as migration of tertiary-educated individuals at such levels and for such long lengths of time that their losses are not counterbalanced by their remittances home, but by transfer of technology, or by investment or trade from the recipient country [8]. Migration also has health implications for the migrants who leave. People who emigrate for financial opportunities may cause a brain drain in their country of origin when a large number of individuals with technical skills leave, thus potentially depleting the local infrastructure. This mainly affects healthcare sector because there are often economic inducements for healthcare workers to migrate [12].

The process of international migration for health workers introduces threats to well-being and psychosocial health in a number of ways. The decision to move often includes fear of the unknown, anxiety about those being left behind, and a sense of impending loss. Some authors have labeled it a type of cultural death that seriously affects the well-being of migrants and their capacity to settle elsewhere, especially where there are additional obstacles of language and culture as well as policies and practices designed to make migration unattractive [1]. In the case of migrant health workers, the process of moving is even more fraught with problems. Migration may also affect risk behavior and risk perception. Feelings of loss and psycho-social issues relating to lower social positions may lead to a feeling of lack of connection between risk behavior and health effects. For example, a new migrant, separated from friends and family, may turn to drugs as a way to escape loneliness, frustration and social isolation. The aim of this study is to identify the relationship between international migration of health workers and chronic disease.

Corresponding Author: Lesego Selotlegeng

METHODOLOGY

STUDY DESIGN

This is a mixed-method study involving both qualitative and quantitative data. Quantitative data were obtained by structured questionnaires from health workers located in health facilities in Gaborone with or without plans to migrate, health workers abroad and those who had returned from abroad. The questions were designed to extract the reasons for migration and the well-being of the health workers. In addition, for health workers who were abroad, a Skype interview was also used to carry out the qualitative aspects of the study to validate and augment the quantitative data. The study was conducted in Gaborone, which had the highest number of health workers in Botswana with 1284 [2], between 2 March 2010 and 30 March 2011.

TARGET GROUP AND SAMPLING PROCEDURE

The target group of health workers were pharmacists, laboratory scientists, dietitians and psychiatric nurses. The author visited the Ministry of Local Government and Lands, the Botswana Nursing Council, three referral hospitals and 14 clinics, with the aim of asking workers whether they knew of any health workers who were working abroad or who had returned from doing so. These participants were selected using the non-probability method of purposive sampling techniques. Specifically, the snowball sampling technique was utilized. The author's contact information was passed to respondents whom the researchers had already interviewed, so that they could pass it on to other potential participants. A Skype interview was conducted with 128 health workers who were working abroad. The snowballing technique was used with returned health workers who had an experience of out-migration. Forty-five returned health workers comprising 35 returned nurses, six doctors, one dentist and three pharmacists with migration experience were located. For health workers located in health facilities in Gaborone, a multi-stage sample design was used to select a sample for the workers employed in hospitals. With this sampling process, the respondents were chosen through a process of defined stages. A random sample size of 210 was attained from three hospitals and 14 clinics.

DATA ANALYSIS

Logistic regression models were used in the analysis of an individual's choice of migration and of his or her well-being. A multiple logistic regression model with forward selection was used for potential confounding. For the survey, the data were analyzed using the statistical software package SPSS, version 21.0.

ETHICAL CONSIDERATIONS

This study was approved by the Human Subjects Review Committee of the Institution of Social Medicine and Health Administration at Shandong Medical University. An ethical clearance letter was also obtained from the Research Review Committee of the Ministry of Health in Botswana. Eligible respondents were confirmed and verbal informed consent was obtained because the study was regarded as a sensitive issue in the local culture. This consent procedure was approved by the Ethical Committee of Shandong University and the Ministry of Health.

RESULTS

Table 1: Demographic data of health workers

	Those who are abroad		Those who returned		Those who are local	
	n (128)	(%)	n(45)	%	n(210)	%
Gender						
Female	44	34.4	33	73.3	100	47.6
Male	84	65.6	12	26.7	110	52.4
Age						
20–30	10	7.8	0	0	69	32.8
31–40	32	25.0	9	20.0	61	29.0
41–50	70	54.4	30	67.0	48	22.9
51–60	14	10.9	6	3.3	27	12.9
61+	2	1.6	0	0	5	2.4
Marital Status						
Single	87	68.0	15	33.3	85	40.5
Married	38	30.3	9	20.0	94	44.8
Divorced	2	1.3	17	37.8	15	7.1
Separated	1	0.7	4	8.9	16	7.6
Employment						
Employed for wage/self-employed	67	52.4	3	6.6	-	-
Student	33	25.8	0	0	-	-
Out of work	10	7.8	12	26.7	-	-
Retired	0	0.0	9	20	-	-
Unable to work	18	14.0	21	46.7	-	-
Health Insurance						
Yes	82	64.0	17	37.8	210	100
No	46	36.0	28	62.2	0	0.0

Table 1 presents the demographic characteristics of the sample used in this study. It reveals that more males than female participated in international migration. For those who were based abroad, 84 (65.6%) were male and 44 (34.4%) female. Of the returned health workers, 33 (73.3%) were female. The majority of respondents were in their prime working age: for those based abroad, 70 (54.4%) were in the 41–50 age bracket while from the sample of returned health workers, 30 (67%) were aged 41–50 years.

QUALITATIVE RESULTS

The push factor

Working conditions. A quarter of the respondents (33, or 25.8%) reported that they work under very difficult conditions that are compounded by a low nurse–patient ratio, a common scenario in hospitals. This ratio was 1:30, with most of the patients wholly dependent on nurses.

> "Here doctors and nurses have separate progression lines. They don't interfere with each other's business. Doctors do not have power over nurses just because of their education." (Participant 7)

Lack of job satisfaction. Thirty-five (27.3%) of the respondents also reported that their further education is dependent on the institutional needs as opposed to their own needs. As a result, when health workers are offered an opportunity to study, they accept it even if it is in an area that does not interest them. Such practices frustrate the health workers, and lead to their burnout and consequently migration. A nurse working in the United Kingdom reported that:

> "I wanted so much to do psychiatric/mental health nursing for my master's, but I was told to do adult health or forget about further studies. This was frustrating for me. I had to migrate and now I am about to complete my studies." (Participant 28)

HIV/AIDS pandemic. Health workers reported that the HIV/AIDS pandemic has resulted in overcrowding of patients in the wards. Overcrowding has been frustrating to the health workers because it interferes with the way they have been rendering care. One participant working in the United Kingdom who reported that HIV/AIDS played a major role in her migration said:

> "The government should introduce risk allowance because nurses more than any other health care worker are at risk of contracting the virus from patients. Moreover, it leads to burnout because you never see patients recover but instead you are bombarded with daily deaths from HIV patients." (Participant 13)

The pull factors

High salary. Salary was mentioned by all participants as a pull factor. One respondent said that she earns an equivalent of BWP 22,000 per month in Australia, more than half of what she was earning as a principal nursing officer. Most of those who worked in the United Kingdom declared that salaries were triple what they were earning in Botswana.

> "Imagine studying for nine years and earning something like BWP 12,000. This issue makes most health professionals change their profession. I know many health workers who changed professions. Some are lecturers because of salary. Here in Australia my salary is triple what I was earning in Botswana." (Participant 101)

Opportunity for further training. Most of the respondents reported that they have an opportunity for further training and that they get reimbursed for the certificates they accumulate in their destination country.

> "When I left Botswana I was a diploma nurse. As I speak now, I am doing my master's in dentistry. This is my choice because I left my country since they wanted me to study a course that I didn't have passion in. Now I am happy." (Participant 98)

QUANTITATIVE RESULTS

Table 2: Prevalence of chronic disease, health risk behavior and mental health conditions among health workers

	Those who are abroad n = 128		Those who returned n = 45		Those who are local n = 210	
	%	95% CI	%	95% CI	%	95% CI
Health Risk Behavior						
Overweight	12.5	(10.93–14.62)	0	(0)	36.1	(32.45–41.91)
Heavy drinking	28.9	(20.12–41.77)	4.4	(3.65–5.21)	2.9	(0.98–4.60)
Smoking	68.8	(62.14–73.02)	11.1	(10.78–15.23)	39.5	(29.98–44.43)
Physical inactivity	30.5	(22.22–35.03)	71.1	(65.11–79.52)	22.9	(20.91–36.32)
Poor diet	47.7	(41.06–52.04)	62.2	(55.70–68.99)	10.5	(9.82–12.88)
No doctor check-up	72.7	(69.18–78.38)	55.5	(50.02–62.93)	14.8	(10.66–16.55)
Drug use	3.1	(1.93–5.05)	2.2	(1.08–3.96)	0	(0)
Hypertension	87.5	(80.71–92.66)	64.4	(59.34–70.26)	47.1	(38.06–51.46)
STI risk factor	58.6	(47.11–63.32)	15.6	(12.22–18.21)	66.7	(12.22–18.21)
Mental Health Condition						
Anxiety disorders	21.9	(20.20–26.94)	26.7	(22.88–32.45)	8.8	(6.02–12.08)
Mood disorders	57.8	(53.0–61.98)	40.0	(35.72–45.60)	10.5	(8.13–14.83)
Eating disorders	13.3	(8.22–14.22)	20.0	(13.45–25.90)	2.9	(0.98–3.04)
Post-traumatic stress disorders	7.0	(2.48–11.15)	13.3	(11.98–18.95)	61.4	(56.26–77.11)
Chronic Health Condition						
Arthritis	36.7	(34.66– 42.88)	40.0	(38.07–51.64)	30.0	(28.84–39.82)
Asthma	3.9	(2.18–4.50)	2.2	(0.69–4.64)	20.0	(15.24–26.04)
Cystic fibrosis	1.6	(0.96–2.25)	0	(0)	8.8	(6.12–10.01)
Diabetes	21.9	(26.22–24.99)	13.3	(12.31–18.17)	36.2	(32.88–42.22)
Heart disease	8.6	(5.26–10.11)	2.2	(1.69–3.58)	15.2	(11.66–17.55)
Migraines	2.3	(1.48–3.70)	2.2	(1.68–3.56)	8.6	(7.99–9.32)
Depression	21.1	(15.07–29.82)	11.2	(8.90–19.08)	35.6	(33.58–43.60)
Disabling back pains	2.3	(1.01–3.34)	17.8	(12.31–21.04)	48.5	(44.28–56.01)
Obesity	1.6	(0.89–2.28)	11.1	(8.63–19.90)	1.0	(0.28–1.22)

The prevalence of health risk behaviors, mental health conditions and chronic health conditions by migration status is shown in Table 2. The study indicated that hypertension is a health risk factor for all health workers (87.5% of workers abroad and 47.1% of local workers were diagnosed with it). When it comes to chronic health conditions, the study revealed that the prevalence of arthritis and diabetes were higher among those health workers who are abroad than the local health workers.

Table 3: Multivariate analysis of health workers and chronic disease

	Those who are abroad n = 128			Those who returned n = 45			Those who are local n = 210		
	n(%)	p	95% CI	n(%)	p	95% CI	n(%)	p	95% CI
Health Risk Behavior									
Hypertension	112(87.5)	0.01*	1	29(64.4)	0.25	1	99(47.1)	0.01*	1
Heavy drinking	37(28.9)		(0.82–1.63)	2(4.4)		(0.88–1.21)	6(2.9)		(0.72–1.90)
Smoking	88(68.8)		(0.32–0.96)	5(11.1)		(0.18–0.46)	83(39.5)		(0.21–0.53)
Physical inactivity	39(30.5)		(1.27–3.51)	32(71.1)		(0.33–0.92)	48(22.9)		(1.23–3.32)
Poor diet	61(47.7)		(0.89–2.03)	28(62.2)		(0.70–1.38)	22(10.5)		(0.82–2.04)
No doctor check-up	93(72.7)		(0.44–2.61)	25(55.5)		(0.55–1.01)	31(14.8)		(0.18–1.18)
Drug use	4(3.1)		(0.72–2.98)	1(2.2)		(0.64–1.25)	0		(0)
Overweight	16(12.5)		(0.63–1.34)	0(0)		–	76(36.1)		(0.45–1.91)
STI risk factor	75(58.6)		(0.73–1.33)	7(15.6)		(0.36–0.82)	140(66.7)		(1.22–2.18)
Mental Health Condition									
Mood disorders	74(57.8)	0.01*	1	18(40.0)	0.01*	1	18(8.8)	0.07	1
Anxiety disorders	28(21.9)		(1.07–3.27)	12(26.7)		(0.64–1.46)	22(10.5)		(1.13–2.83)
Eating disorders	17(13.3)		(0.83–2.49)	9(20.0)		(0.66–1.28)	6(2.9)		(0.98–3.04)
Post-traumatic stress disorders	9(7.0)		(0.62–1.01)	6(13.3)		(0.63–0.99)	129(61.4)		(1.26–1.95)
Chronic Health Condition									
Arthritis	47(36.7)	0.01*	1	18(40.0)	0.07	1	60(30.0)	0.28	1
Asthma	5(3.9)		(0.59–1.26)	1(2.2)		(0.50–1.52)	42(20.0)		(0.66–1.06)
Cystic fibrosis	2(1.60		(0.69–1.02)	0(0)		–	18(8.8)		(0.89–2.38)
Diabetes	28(21.9)		(1.10–1.22)	6(13.3)		(0.40–1.20)	76(36.2)		(1.32–2.22)
Heart disease	11(8.6)		(0.79–1.52)	1(2.2)		(1.14–1.33)	32(15.2)		(1.04–1.75)
Migraines	3(2.3)		(1.08–1.72)	1(2.2)		(1.01–1.47)	18(8.6)		(1.24–1.72)
Depression	27(21.1)		(0.72–1.82)	5(11.2)		(1.09–2.02)	38(18.1)		(0.58–1.11)
Disabling back pains	3(2.3)		(0.32–1.03)	8(17.8)		(0.91–1.25)	102(48.5)		(1.47–2.70)
Obesity	2(1.6)		(0.75–1.63)	5(11.1)		(0.99–1.02)	2(1.0)		(0.68–1.21)

In Table 3, multivariate analysis indicates that hypertension, mood disorders and arthritis are significantly associated with migration. The health workers abroad were more likely to have hypertension (p = 0.01) than those who had returned from abroad. The relationship between migration and a chronic health condition was significant in the prevalence of arthritis for health workers abroad (p = 0.01). Local health workers had a higher prevalence of disabling back pains (95% CI: 1.47–2.70), which was different from health workers abroad.

DISCUSSION

In Botswana, shortage of health workers is most critical in urban areas where most health centers are being served by foreign health staff. As in this study, other researchers [7], found that pay and the desire to further one's studies are still the most compelling reasons for a health worker to migrate. However, in this study, a desire for one to further one's education exceeded the need for better pay. This supports the literature that professional development is an integral part of an individual's career planning [14]. The push factors that encourage skilled health workers to migrate are long working hours, shortage of staff and low salary. What is most distressing is that those who remain, or who have not yet left, suffer the consequences of the gaps left by those who migrate [11], indicated in this study in terms of the prevalence of disabling back pain in local workers (48.5%), which is mostly associated with stress and workload. One of the most compelling results for

this study concerns HIV/AIDS, which was identified by a significant number of health workers who had migrated as a push factor because of the numerous programs (for example, prevention of mother to child transmission) that have drawn most health workers out of their usual duties.

While health workers are often comparatively healthy, they often face particular health challenges and are vulnerable to a number of threats to their physical and mental health. The prevalence of physical inactivity in this study was 30.5% among health workers abroad and 71.1% among those who returned from abroad. Interestingly, the results indicated that 22.9% of local health workers are inactive. Less active and less fit people have a greater risk of developing hypertension, which was significant ($p = 0.01$) for health workers both local and abroad in this study. Hypertension development may be associated with the feeling of isolation and loneliness from relatives that are characteristics of health workers abroad. In addition, the health workers who are local were significant ($p = 0.01$) and these characteristics do not apply to them because they are not isolated from their loved ones, leaving only the factor of occupational stress. Although occupational stress is not a confirmed risk factor for hypertension or heart disease, previous studies in Botswana indicated that 89% of health workers reported experiencing occupational stress and 69% expressed the need for counseling [5]. Previous studies have revealed that physically active individuals are less likely to develop coronary heart disease than those who are inactive [3]. The majority of health workers abroad did smoke (68.8%). This increases the risk of developing a range of chronic health conditions such as heart disease. The process of migration introduces threats to psychosocial health and well-being in a number of ways. The decision to move is often replete with fear of the unknown, anxiety about those left behind [6] and can cause health workers to use smoking as a way of dealing with these fears. Anxiety and mood disorders are common problems that easily become chronic when not treated [10]. This study revealed that 36% of health workers abroad and 62.2% of returned health workers do not have health insurance—the reasons being they do not want to spend. This presents serious implications for overall psychosocial well-being, including depression and psychosomatic functional disorders such as migraines and disabling back pain.

The prevalence of arthritis is significant ($p = 0.01$) with migration in this study, this may be because the majority of health workers abroad had multiple jobs, which poses a health risk. Previous studies have indicated that it is not always known why arthritis develops. Most reports suggest that it is a combination of factors which can include muscle weakness, obesity, stress, constant exposure to the cold and aging [12]. The association between migration and depression disorder among health workers who are abroad was likely to be higher than for those who were local (95% CI: 0.72–1.82) in this study. The reason may be that the majority of health workers left their families in Botswana, and it was not easy for them to deal with their emotions, so they bottled them up, a response which is likely to culminate in depression. In addition, this study revealed the same for the returned health workers, which may be because some returned home to live with relatives. When the search for work ended with disappointment after their return, they became depressed. Previous studies have indicated that health workers who have migrated often must wait a long time before they are re-employed, and somehow it stresses nurses who have migrated when they cannot find employment [15]. One author found that rates of depression, anxiety and stress disorder were between three and four times higher among Tamil asylum seekers than among other immigrants [9]. Even if remittances are sent back by health workers and become a mainstay of the families—a main reason to migrate—the physical and emotional distance that separates health workers from their loved ones can be psychologically erosive for everyone involved.

CONCLUSION

Health workers' migration will continue until firm procedures are put in place that make pull factors within Botswana more readily noticed. Poorly operated and designed human resource management systems reinforce low morale, foster out-migration and make it problematic for those wanting to come back. Lack of opportunities for further studies by health workers, engineered by those in power, is often mentioned as symptomatic of poorly managed human resource systems. The connection between migration and chronic disease in Botswana emphasizes the need to focus not only on the psychological health consequences but also on potential chronic disease consequences. In addition, results from this study provide rationale for collaborations studies between migration, health risk behaviors and chronic disease. As a matter of urgency, it also provides an impetus to develop preventative and interventional approaches that seek to address these disturbing health issues.

REFERENCES

[1] Bainame K., Letamo, G. & Majelantle, R. G. (2002) *The effects of rural inequalities on fertility and migration in Botswana.* Gaborone, Botswana, Government of Botswana.

[2] Botswana Population and Housing Census (BPHC) (2011) *The population of towns, villages and associated localities*. Gaborone, Botswana, Government of Botswana Printer.

[3] Creighton, M. J., Goldman, N., Teruel, G. & Rubalcava, L. (2011) Migrant networks and pathways to child obesity in Mexico. *Social Science Medicine,* 72 (5), 685–693.

[4] Goldacre, M., Davidson, J. & Lambert, T. (2004) Country of training and ethnic origin of UK doctors: database and survey studies. *British Medical Journal,* 329 (7466), 597–602.

[5] Government of Botswana (GoB) (2007) *Caring for health workers—a national strategy for Botswana: needs assessment report, summary, and recommendations*. Gaborone, Botswana, Ministry of Health.

[6] Iannotti, R. J., Janssen, I., Haug, E., Kololo, H., Annaheim, B. & Borraccino, A. (2009) Interrelationships of adolescent physical activity, screen-based sedentary behavior, and social and psychological health. *Int J Public Health*, 54, S191–S198.

[7] Kingma, M. (2005) Nursing migration: global treasure hunt or disaster in the making. *Nursing Inquiry*, 8 (4), 205–212.

[8] Lowell. L. & Findlay, A. (2002*) Migration of highly skilled persons from developing countries: impact and policy responses,* 43, Editor. International Labour Organization Geneva.

[9] Manicavasagar, V., Parker, G. & Perich, T. (2011) Mindfulness-based cognitive therapy vs cognitive behaviour therapy as a treatment for non-melancholic depression. *Journal of Affective Disorders*, 130, 138–144.

[10] Mann, K. D. (2013) Differing life course associations with sport-, occupational- and household-based physical activity at age 49–51 years: the Newcastle Thousand Families Study. *Int J Public Health*, 58, 171–176.

[11] McGrath, N. (2015) Migration, sexual behaviour, and HIV risk: a general population cohort in rural South Africa. *The Lancet HIV*, 2 (6), e252–e259.

[12] NACA (2009) *Preliminary Botswana HIV/AIDS Impact Survey Results*. Gaborone, Botswana.

[13] Reid, M. C, Shengelia, R. & Parker, S. J. (2012) Pharmacologic management of osteoarthritis-related pain in older adults. *The American Journal of Nursing*, 112 (3), S38–43.

[14] Soskolne, V. S. R. A. (2002) Migration and HIV prevention programmes: linking structural factors, culture, and individual behaviour-an Israeli experience. *Social Science and Medicine*, 55(8):1297-1307.

[15] Thupayagle-Tshweneagae, G. (2007) Migration of nurses: is there any other option? *International Nursing Review*, 54, 107–109.