

Résumé

**La tuberculose et les troubles mentaux courants :
des leçons d'autres pays applicables
à la santé des immigrants au Canada**

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La tuberculose est un problème de santé urgent d'ampleur mondiale. Son impact sur d'autres infections et maladies et sur des facteurs sociaux, y compris l'immigration, est bien connu. Toutefois, peu de recherches ont été menées sur les liens entre la tuberculose et les troubles mentaux, particulièrement chez les immigrants au Canada. Les auteurs font état d'un examen de portée qu'ils ont réalisé pour mieux comprendre les synergies entre la tuberculose, les troubles mentaux et les conditions sociales sous-jacentes touchant la santé des immigrants. Ils mettent en lumière les articles qui traitent de la cooccurrence entre tuberculose et dépression/anxiété. Après avoir décrit leur approche et leur stratégie, ils présentent des catégories thématiques clés : la prévalence; la présentation clinique; et les effets des stigmates et de la pauvreté. Inscrivant la recherche dans un contexte mondial, ils estiment que la migration contribue à ces conditions synergétiques. L'étude démontre que les Canadiens ont beaucoup à gagner en apprenant des expériences vécues par les pays à faible et moyen revenus en regard de ce qui constitue les meilleures données probantes à recueillir pour gérer des problèmes de santé mondiaux complexes.

Mots clés : tuberculose, troubles mentaux, immigrants, synergies, conditions sociales, stigmates, pauvreté

Tuberculosis and Common Mental Disorders: International Lessons for Canadian Immigrant Health

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Tuberculosis is a pressing global health issue. Its association with other infections, illnesses, and social factors, including immigration, is well known, yet comparatively little research has examined the connections between tuberculosis and mental disorder, particularly among immigrants in Canada. The authors report on a scoping review conducted to better understand the synergies of tuberculosis, mental disorders, and underlying social conditions as they affect immigrants' health. They highlight the articles that focused on the co-occurrence of tuberculosis and depression/anxiety. After describing their approach and strategy, the authors present key thematic categories: prevalence, clinical presentation, and effects of stigma and poverty. Examining the research within the global context, they argue that migration contributes to these synergistic conditions. The review shows that Canadians stand to gain much by learning from low- and middle-income countries about what constitutes best evidence in approaching complex global health issues.

Keywords: care delivery, determinants of health, infectious diseases, mental health/psychosocial, psychosocial aspects of illness, vulnerable populations

Introduction

Tuberculosis (TB) is a pressing global health issue. Its current resurgence worldwide has been linked to globalization, migration, inconsistent or outdated treatments, and other, equally troubling, diseases, notably HIV/AIDS (World Health Organization [WHO], 2008). The World Health Organization's 2011 *Global Tuberculosis Control* report indicates that in 2010 almost 9 million new cases of TB were diagnosed worldwide and almost 1.5 million individuals died from the disease; although incidence rates and absolute numbers of cases have been falling since 2002 and 2006, respectively, multidrug-resistant TB (MDR-TB) remains a major concern, with fewer than 5% of new and previously treated TB patients being tested for MDR-TB in most countries in 2010 (WHO, 2011).

Social factors, such as poverty, inadequate housing, and stigma, also affect the activation, treatment, and spread of TB. These social factors are similarly significant determinants of mental disorder, and global statistics in this area are also of great concern. Estimates indicate that mental disorders account for 13% of the overall global burden of disease (WHO, 2004). Depression, alcohol addiction, and psychoses are among the 20 leading causes of disability, and depression alone ranks third worldwide, eighth in low-income countries, and first in middle- and high-income countries (WHO, 2004). According to a DSM-V working group, mental disorder refers to a behavioural or psychological pattern in an individual that reflects underlying psychobiological dysfunction; is not an expectable or culturally sanctioned response to common stressors, losses, or events; has clinically distressing or disabling consequences; and, debates about specific nomenclature notwithstanding, has clinical utility. Thus the term “mental disorder,” when appropriately used, is more than a descriptive label (Stein et al., 2010).

There have been some investigations into the question of TB and mental disorders as co-occurring health problems, but Canadian research on the topic is lacking. Additionally, although immigrants are over-represented in Canadian TB rates and experience particular pressures that affect mental health, the synergies of TB and mental disorders in this group have not been studied in depth. Therefore, we undertook a scoping review to identify how these health problems and their underlying social conditions are framed in the literature in relation to immigrant health. A scoping review, one of several types of systematic literature synthesis, is typically defined as a technique of mapping out literature addressing a specific topic in a broad sense so that the range of perspectives and approaches to the topic are captured (Arksey & O'Malley, 2005). We therefore scoped both TB best practice documents and empirical literature from a syndemics perspective, which is theoretically premised on a critique of medicalization (Singer, 1994, 2004; Singer & Clair, 2003).

In this article we present only those publications addressing the relationship among TB, the common mental disorders of depression and anxiety, and social conditions that play a role in this co-morbidity, organized within the thematic categories of prevalence, clinical presentation, and effects of stigma and poverty.¹ In the Canadian context, newcomer populations bear unique stressors that are associated with both TB and common mental disorders. We thus argue that in a globalized world immigrant experiences represent an important point for consideration. We conclude with some lessons that stem from our reflections on the surprising lack of Canadian research in this area and offer suggestions for possible directions in Canadian TB programming.

¹ For a full description of the review, see Bender, Hyman, Guruge, and Janjua (2012).

Background

Understanding TB as a global health issue means understanding that being born in or travelling in a country where TB is widespread represents one of the highest risk factors for contracting the disease (Public Health Agency of Canada [PHAC], 2009). This poses specific challenges to the provision of quality care in the Canadian context (Gardam et al., 2009). TB and immigration has been well studied and the research can be categorized into two main areas: (1) factors associated with latent TB and activation of the disease, and (2) barriers to detecting and treating the infection/disease in newcomers (Hyman, 2001). Over the past decade, 80% of immigrants (including refugees) arriving in Canada each year have originated from countries with a high incidence of TB (Long & Ellis, 2007). Despite a decline in the reported incidence rate of active TB (new and re-treatment cases) in immigrants, from 21.2 per 100,000 in 1998 to 13.7 per 100,000 in 2008, the annual number of newly reported TB cases has not changed substantially since 1970 (PHAC, 2010). Additionally, although the total number has remained stable, the proportion of immigrants in all active TB cases has increased significantly, from 18% in 1970 to 63% in 2008 (PHAC, 2010).

Increasing globalization brings with it the increased mobility of populations, or migration, which is a process of transition in terms of personal relationships, social networks, and socio-economic and cultural systems (DesMeules, Giri, & Grondin, 2010; Kirmayer et al., 2011). Unique to the migration experience itself, (re)settlement stress has been studied for its effect on the immune system and on the mental health of those who have migrated (Beiser, 2005; Hyman, 2001, 2004). Specific factors affecting mental health include pre-migration economic, educational, and occupational status; disruption in social roles, networks, and support; and political involvement and trauma (Hansson, Tuck, Lurie, & McKenzie, 2010; Kirmayer et al., 2011; Pottie et al., 2011). Post-migration stressors centre on issues of loss and uncertainty; disillusionment, demoralization, and depression are experienced when initial expectations are not met and when structural barriers and inequalities persist (Kirmayer et al., 2011, p. E961). Immigrants are generally less likely than their Canadian-born counterparts to use mental health services, even when levels of distress are comparable (Ganesan, Mok, & McKenna, 2011; Kirmayer et al., 2011); one of many reasons for this may be that mental disorders can involve considerable social stigma (Hansson et al., 2010).

Stigma can be conceptualized as a social phenomenon that is experienced subjectively, affecting one's cognitive and psycho-emotional processes. Layers of stigmatizing experiences therefore can compound such coping challenges as comprehending the disease/illness, self-doubt,

and distrust of health professionals (Lekas, Siegel, & Leider, 2011; Mill et al., 2009). Specific to immigration and TB, stigma takes form in stereotypes of “foreigners” as the source of contagion or as those who “bring” diseases, which can cause immigrants to feel victimized by government screening protocols and border-control policy (Coker, 2004; Coreil et al., 2010; Littleton, Park, Thornley, Anderson, & Lawrence, 2008). The psychological and emotional effects of a contagious disease like TB, particularly for newcomers to a country, can lead to complex situations involving depression and anxiety, which call for more integrated approaches to population-focused disease management and individual mental health care.

Theoretical Perspective: Syndemics

Without diminishing Western medicine’s central contribution to the successful treatment and eradication of TB, we recognize that medicalization can limit our understanding of health and illness. Therefore the review was guided by a syndemic approach, which stems from a critique of this phenomenon (Milstein, 2008; Singer, 2004). Medicalization is defined generally as a process of absorbing social conditions and behaviours into a biomedical arena, primarily by using pathologizing terminology to account for such concerns; it can serve “to mystify and de-politicize the social origins of personal distress” (Singer, 2004, p. 28). In short, it has profoundly shaped our understanding of the meaning of disease and the illness experience, the world over, thereby also often segregating treatment systems according to categories of disease. As Singer (2004) notes, diseases are more than simply the result of a pathogen or biochemical problem. They vary across locations and populations according to geographical conditions, systemic and institutional activities, resource distribution, and the living conditions that emerge from these arrangements. Similarly, the sufferer’s experience, or “the manner in which an ill person manifests his or her disease or distress,” is socially constructed as it is lived out between cultural meanings and the political-economic conditions of daily life (Singer, 2004, p. 27). Certainly this critique holds in the global context, when one considers the movement of people and diseases around the world.

A syndemic, as a refinement of the medicalized notion of epidemic, is defined as “a set of intertwined and mutually enhancing epidemics involving disease interactions at the biological level that develop and are sustained in a community/population because of harmful social conditions and injurious social connections” (Singer & Clair, 2003, p. 429). This kind of approach has gained a foothold in studies of HIV and its related conditions such as poverty (Singer, 1994) and financial crisis (Freudenberg, Fahs, Galea, & Greenberg, 2006); psychosocial problems

(Mustanski, Garofalo, Herrick, & Donenberg, 2007; Stall et al., 2003); and TB (Freundenberg et al., 2006; Littleton & Park, 2009), with several authors noting the marginalization of vulnerable populations, including immigrants, as an important aspect of the synergies of certain epidemics. From a global perspective on TB and mental disorders, it is important to incorporate pre- and post-migration locations, conditions, and experiences into our understanding of the mutually enhancing elements of TB (given its “contagious” label and demanding medication regime), mental disorders (manifested as “symptoms” that deeply affect one’s sense of identity and reality), and immigration stress. For this reason, a syndemic perspective was useful for our scoping review.

Purpose and Search Strategy

Our purpose was to understand the synergies of TB, mental disorders, and underlying social conditions as they relate to immigration. The original guiding question was as follows: How are TB and mental disorders, along with social conditions, understood and addressed as intersecting issues for immigrant health? The peer-reviewed literature was searched using the following databases: MEDLINE, EMBASE, PsychINFO, PubMed, CINAHL, Social Science Abstracts, Sociological Abstracts, Web of Science, and Scopus. Articles were restricted to those published in English between 1960 and 2010. We included a range of journal articles, including case reports, clinical trials, evaluation studies, randomized control trials, and literature reviews. The search terms were organized into four categories: tuberculosis (TB), mental health (MH), social conditions (SC), and immigrant health (IH), and 23 variations of these terms served as keywords. Initially, a search was run for each keyword within separate categories, followed by crossing each category’s results with the others, as follows: (1) all four categories (TB, MH, SC, and IH) and three respective combinations: (2) TB, MH, and SC; (3) TB, SC, and IH; (4) MH, SC, and IH. This yielded over 23,000 articles, so we eliminated the fourth combination, which did not include TB, and those articles not published within the last 25 years. The result was 1,397 articles. We further reduced the number of articles by removing those focused on TB among immigrants without explicit attention to mental health. We also excluded those on TB prevention rather than treatment, because treatment methods themselves have implications for mental health, and any effective prevention strategy must consider treatment of active disease. The titles and abstracts of the resulting 110 articles were scanned for relevance, leaving a total of 31 articles. Of these, 13 specifically identified the co-morbidities of TB and depression and anxiety, and only two of these articles identified immigrant populations.

Table 1 Articles Included in the Review				
Authors	Location	Design and Year Conducted	Topic / Purpose	Immigrant Focus?
Aamir & Aisha (2010)	Haripur, India	Survey using Hospital Anxiety and Depression Scale (HADS) (self-rating); over 6 months of treatment	To examine how detection of anxiety and depression levels in TB patients at an early stage can improve treatment adherence	No
Aghanwa & Erhabor (1998)	Ile-Ife, Nigeria: chest clinic of teaching hospital	Prospective controlled survey using 30-item General Health Questionnaire, Present State Examination (9th ed.), and demographics questionnaire; 1995-96	To examine the impact of TB on mental health status and to determine the relationship between psychopathology and sociodemographic characteristics	No
Bhasin et al. (2001)	East Delhi, India: 2 DOTS centres (hospital and dispensary)	Case-control study using Illness Behaviour Questionnaire (validated Hindi version); 2000	To understand illness perceptions and behaviours of TB patients	No
Deribew et al. (2010)	Adama, Nekemet, and Jimma, Ethiopia: urban hospitals	Cross-sectional study using Kessler 10 Scale, Comprehensive Psychopathology Rating Scale (CPRS), adapted stigma questionnaire, and patient records for demographics; 2009	To compare occurrence of common mental disorders in TB patients and TB/HIV co-infected patients	No

Husain et al. (2008)	Karachi, Pakistan: urban hospital (rural-receiving)	Survey using HADS; no psychiatric interview to diagnose; n.d.	To determine the presence of depression and anxiety in TB patients and their perceptions of the illness	No
Macq et al. (2005)	5 municipalities in Nicaragua: health centres	Qualitative descriptive; focus group and in-depth interviews; 2003	To explore social stigma of TB to inform an intervention for a government health program	No
Manoharam et al. (2001)	Vellore, India: community hospital	Structured interviews using Revised Clinical Interview Schedule and Short Explanatory Model Interview and ICD-9 diagnostic criteria; n.d.	To examine factors linked with TB treatment non-adherence, including psychiatric morbidity and patient beliefs	No, but questionnaire translated into Tamil
Naidoo & Mwaba (2010)	Cape Metropole, South Africa: public health TB clinic	Cross-sectional study using Beck Depression Inventory (Xhosa translation) and Social Network Support Questionnaire; n.d.	To determine the prevalence and severity of depression in TB patients as well as presence and type of social support	No, but Xhosa identified as main ethnic group
Natani et al. (1985)	Jaipur, India: hospital for TB and chest diseases	Cross-sectional study using Beck Depression Inventory and sociodemographic questionnaire; n.d.	To determine rates of depression in TB patients and the relationship between depression and sociodemographic characteristics	No
<i>(continued on next page)</i>				

Table 1 (cont'd)				
Authors	Location	Design and Year Conducted	Topic / Purpose	Immigrant Focus?
Nolan et al. (1988)	Seattle, United States: urban hospitals; public health TB clinic	Case study using clinic records; 1984–85	To examine factors involved in intentional isoniazid overdose in 3 Southeast Asian refugees	Yes: Southeast Asian refugees
Trenton & Currier (2001)	United States	Commentary	To offer guidelines for the co-morbid treatment of TB and depression	Immigration mentioned as risk factor
Vega et al. (2004)	Lima, Peru: community-based NGO	R-retrospective case series 1996–99, including DSM-IV psychiatric diagnoses	To examine “psychiatric complications” in MDR TB cases	No
Westaway & Wolmarans (1992)	Soweto, South Africa: national TB hospital	Pilot study; n.d.	To determine the reliability and validity of the Beck Depression Inventory and applicability for screening in Black TB patients with low literacy; Rosenberg Self-Esteem Scale also used	No

**Results: Prevalence, Clinical Presentation,
and Effects of Stigma and Poverty**

The 13 selected articles, detailed in Table 1, share commonalities yet differ in terms of context, purpose, and approach. They have been thematically categorized according to the prevalence of depression and anxiety in TB patients, the clinical presentation, and the effects of stigma and poverty — social conditions that are inseparable from TB and mental disorders. Throughout the review we discovered encouraging examples of effective interventions yet found very little addressing the concerns of immigrants. However, we observed that the studies varied geographically across four continents and represented countries with a heavy TB burden that are also common sources of immigrants to Canada. The stated rationale for examining depression and anxiety in eight studies was to improve TB treatment adherence (Aamir & Aisha, 2010; Deribew et al., 2010; Husain, Dearman, Chaudry, Rizvi, & Waheed, 2008; Naidoo & Mwaba, 2010; Natani et al., 1985; Westaway & Wolmarans, 1992). This is important because the goal of treatment adherence reflects the strong public health underpinnings of TB programs and the unique dual concern of protecting the population and caring for the sick individual. Key themes identified across articles were the prevalence and clinical presentation of depression and anxiety in TB patients and stigma and poverty as contributors to these health problems.

The detection of depression and anxiety in TB patients and clarification of related clinical features is important in ensuring that their signs and symptoms as well as their risk factors are recognized and appropriately addressed in TB care. An important first step is screening for mental disorders in TB settings. Several authors addressed screening, drawing associations between certain demographic characteristics and the TB-depression co-morbidity. For example, Natani et al. (1985) found that of the 150 TB patients screened in Jaipur, India, almost half met the criteria for depression (49%), citing such related social concerns as illiteracy, low socio-economic status, and attitudes towards TB. In Vellore, India, Manoharam, John, Joseph, and Jacob (2001) examined factors associated with TB treatment non-adherence, including psychiatric illness and patients' beliefs. Of 52 consecutive patients in a TB clinic, 7 (13.5%) met the *International Classification of Diseases (ICD-9)* (2012) criteria for depression. In Pakistan, Husain et al. (2008) also found high rates of depression and anxiety (46% and 47.2%, respectively), and symptoms of depression were positively correlated with physical symptoms of TB. With the overall goal of improving care for Black hospitalized TB patients, Westaway and Wolmarans (1992) adapted the Beck Depression Inventory

(BDI) as a screening tool for the South African context, and found that 65 of 100 patients met criteria for depression.

Two studies highlight a possible link between ongoing concurrent therapy for depression and anxiety and TB cure. Aamir and Aisha (2010) found that 47 of 65 newly diagnosed TB patients (72%) scored in the moderate-to-severe category for depression and anxiety. At the point of usual treatment completion 6 months later, 14 of the 47 individuals (22%) had not fully adhered to medications and showed signs of MDR-TB. Interestingly, the remaining 33 had agreed to regular consultations with a psychiatrist and completed the full course of treatment. In Lima, Peru, psychiatrists conducted unstructured screening interviews with patients as part of a comprehensive MDR-TB management program, which continued on a monthly basis with the prescription of psychiatric medications as necessary (Vega et al., 2004). The baseline prevalence of depression in this clinic population was higher than that for the general population (50%), but this seemed to improve over the course of treatment, which included psychosocial and psychiatric care.

Several authors examined depression and anxiety in individuals with particular complications of TB. HIV is a significant co-morbidity, particularly in countries with high rates of both infections (Deribew et al., 2010; Naidoo & Mwaba, 2010). Deribew et al. (2010) note that while depression has been studied in relation to HIV and to TB separately, cases of TB-HIV co-infection have not received the same attention. Comparing depression and anxiety rates in HIV patients and TB-HIV co-infected patients in Ethiopia, the authors found higher rates in the co-infected group (46.7% for HIV alone, compared to 63.7% for TB-HIV), although 20% of this group was lost to follow-up.

Suicide was the focus in Nolan, Elarth, and Barr's (1988) review of six clinical cases of intentional overdose with the first-line TB medication isoniazid. The patients were South Asian refugee females in the Seattle area of the United States, aged 14 to 23 years. Psychiatric evaluations at the time of hospitalization indicated that two patients were experiencing depression, two had depressed mood as a result of relocation stress, and two were believed to have acted on impulse. Migration status is mentioned as a contributing factor, but, surprisingly, the links among TB, depression, and "relocation stress" are not explored. The only recommendation offered is to limit the supply of isoniazid for newcomers, thereby increasing the frequency of clinic visits and opportunities to evaluate treatment adherence and suicide risk. In their literature review, Trenton and Currier (2001) counsel caution regarding the problematic links between isoniazid and select serotonin reuptake inhibitor (SSRI) antidepressants in terms of the potential for serotonin syndrome (marked by such symptoms as hypertension, hyperthermia, and rigidity). Despite a

dearth of published studies, clinical reports led them to conclude that since TB and depression often co-occur, sufficient preparation of both primary care practitioners and psychiatrists is required to prevent problematic interactions.

Shifting from diagnostic and treatment concerns alone, several authors have taken a broader, quality-of-life, approach to clarifying TB patients' clinical presentation. Arguing for a more holistic view of the psychosocial characteristics of TB, Bhasin, Mittal, Aggarwal, and Chadha (2001) identify depression and stress in a study of patients' perceptions and behaviours related to their illness. TB patients had statistically significant higher scores than a control group in the categories of affective disturbance/dysphoria (including depressed mood), affective inhibition (restricting expression of negative emotions), and general hypochondriasis. Thus, they argue that TB patients are more distressed and have more behavioural concerns. Given that TB has so many confounding psychosocial dimensions, individuals' perceptions and beliefs must be carefully incorporated into care in culturally appropriate ways (Bhasin et al., 2001; Manoharam et al., 2001).

Similarly, Naidoo and Mwaba (2010) investigated learned helplessness, social support, and depression, arguing that clarification of the relationships among them helps to determine the best ways of enhancing TB patients' quality of life. Helplessness and depression are typically thought to be insidiously linked and to have negative effects on health outcomes. Interestingly, however, 64% of study participants were diagnosed with clinical depression, yet 89% of those did not report feelings of helplessness. Notably, participants in the 89% group also discussed social support in positive ways.

Broader still, the social context of TB patients' lives is acknowledged. Several authors (Aghanwa & Erhabor, 1998; Deribew et al., 2010; Vega et al., 2004; Westaway & Wolmarans, 1992) spotlight the role that poverty and stigma play in depression, anxiety, and TB. For example, Aghanwa and Erhabor (1998) investigated possible links between psychopathology and sociodemographic characteristics of TB patients, including occupation and income. Comparing a TB patient group and two control groups matched for age and gender, the authors found that more than 30% of TB patients experienced mild depressive episodes, generalized anxiety, and adjustment disorder, and that these disorders were inversely associated with socio-economic position and linked to experiences of stigmatization. Deribew et al. (2010) found that the risk of depression and anxiety was higher in TB-HIV patients who had no income or low income and who perceived themselves to be stigmatized and in poor health. And 81% of Westaway and Wolmarans' (1992) participants were unemployed or underemployed, 51% were the family's primary income-earner, and yet

only 5% earned income during hospitalization. This calls attention to poverty, not only as a pre-existing condition for many TB patients, but also as a condition exacerbated by TB management protocols themselves, such as lengthy hospitalization, and by depressive disorders that can impair one's ability to work.

Poverty is also implicated in Macq, Solis, Martinez, Martiny, and Dujardin's (2005) analysis of stigma in TB. Although specific psychiatric diagnoses were not identified, these authors cite the need to address the sadness, loss of confidence, and depression that TB patients experience as a result of the attitudes/reactions of others. Several sources of stigma are identified, including patients' and others' contradictory feelings and behaviours, relational power dynamics (including those with health-care providers), and the health information delivered by professionals. Macq et al. argue that TB-related stigma is compounded by low social status and poverty, opening the way for even further subjugation of patients by health professionals, which in turn negatively affects mental health. They suggest strengthening the psychosocial component of TB care through capacity-building with patients and frontline health workers and changing structural models of care delivery. Supporting this idea of the importance of system-level change, Vega et al. (2004) comment that although depression declined in their program over time, the stressors of poverty and stigma persisted.

In summary, the reviewed studies provide compelling evidence of the high correlation of TB and depression and anxiety along with related clinical and social issues. Validated screening and diagnostic tools were used (HADS, BDI, ICD-9, DSM) and psychiatric specialists were consulted. Yet, as Singer and Clair (2003) argue, such codifications conceptualize disease as "an objective, clinically identifiable, and hence boundable entity" (p. 424), which may lead researchers and decision-makers to use similarly bounded approaches that often minimize such contextual issues as culture, disparity, and stigma. Conversely, while studies focused on the social level, such as those addressing stigma,² contribute to an overall understanding of the complexity of conditions affecting health, this kind of research tends to remain detached from the biomedical concerns and bodily experiences of TB and depression. Additionally, immigration is generally absent as a focal point in these studies. Although the suicide case studies presented by Nolan et al. (1988) might tell important stories of the immigrant experience, the authors' analysis and recommendations remain strictly biomedical; the resettlement stress associated with

² Note that those articles in the review that addressed stigma in more depth (e.g., Jimenez, 2003) were not included here because common mental disorders were not highlighted explicitly.

migration and its role in depression goes unacknowledged as an important area of intervention. This absence of an immigrant-health focus highlights the need for further research, particularly in Canada. For example, these articles collectively beg a question regarding the central notion of isolation: How best to integrate what we know about the physical isolation that TB requires, the often self-induced isolation that depression invites, and the social isolation that stigma engenders? This question becomes more complex in situations of migration, a process that can confound social and physical isolation. This review also complements, as described elsewhere (Bender, Hyman, Guruge, & Janjua, 2012), the guidelines recently published in the *Canadian Medical Association Journal* for working with immigrants and refugees (Pottie et al., 2011).

International Lessons for the Canadian Context

From a syndemic perspective, a strictly biomedical or traditional epidemiological approach is insufficient. Similarly, a social perspective is important but taken on its own can marginalize very real and pressing biological and population health concerns, and is therefore also insufficient. Thinking synergistically helps to generate interdisciplinary, intersectoral, multi-intervention strategies for improved health (including mental health) outcomes (see Edwards, Mill, & Kothari, 2004). Despite their lack of explicit attention to immigrants, the studies offer valuable lessons for Canadian TB professionals. There is a need to focus interventions on reducing the negative mental health consequences of TB for immigrants through appropriate screening and monitoring for mental disorders; use TB programs more comprehensively as an entry point for mental health services; and examine how poverty, stigma, and other social conditions contribute to depression and anxiety for these patients and then develop treatment models that are culturally and contextually consistent.

More specifically, the literature reflects the importance of treatment adherence in the management of TB and links successful adherence with engaging psychiatric services for TB patients with altered mental status or mood. However, an emphasis on this goal alone could shift providers' attention away from meaningfully exploring the synergistic effects of everyday stressors — interpersonal, social, and treatment-related — and limit the psychotherapeutic potential of their daily encounters with patients. Furthermore, emphasis on adherence as the primary population health mandate of TB professionals may sideline critical discussion of power dynamics reflected in personal attitudes towards patients.

Following from this, health education as a recommended strategy for reducing stigma (Aghanwa & Erhabor, 1998; Bhasin et al., 2001; Deribew

et al., 2010) is challenged by Macq et al.'s (2005) articulation of health-care providers' subjugation of the "ignorant" patient. Despite their best intentions, health professionals may inadvertently display belittling attitudes towards the recipients of their educative efforts. In the enthusiasm for transmitting knowledge to uninformed patients, other forms of stigma may be reinforced. Thus superficially applied education strategies are inadequate. The synergies of TB, depression and anxiety, and stigma demand comprehensive programming that allows sufficient time for trusting relationships to develop; promising initiatives in this vein have been reported (Macq et al., 2005; Vega et al., 2004).

Third, racialization is a relevant social phenomenon when contemplating who are most affected by TB in the world, yet this is not explored in the literature. For example, despite the identification of Black patients in the title and introduction of the study by Westaway and Wolmarans (1992), no rationale is given for this racial focus and the possible intersections of race, stigma, depression, and TB remain unacknowledged. Nolan et al. (1988) single out South Asian refugees in Seattle but, similarly, race is an invisible dimension of these "cases." And though race is not mentioned in the remaining studies, possibly because of the homogeneity of groups in these study locations, the confluence of racism, a particularly troubling form of stigma, is an important issue in mental disorders (Hyman, 2009) and TB (Farmer, 1997) and for places like Canada where racialized groups account for 75% of newcomers (Hyman, 2009).

The review indicates that research is needed to further examine TB standards and guidelines. In an era of evidence-based practice, how do TB practices incorporate evidence regarding mental health and how might such programs be structured? For example, the article by Toth, Fackelmann, Piggott, and Tolomeo (2004) is one of the very few published in Canada that focuses directly on TB nursing. It highlights the establishment of trust as central when issues such as culture and mental illness affect treatment. Still, while establishing trust is vital, it is only the first step in planning for and intervening in complex situations of migration, TB, and mental disorders. The real challenge for practising nurses lies in translating biomedical and epidemiological knowledge into culturally appropriate action and introducing tailored, tested psychotherapeutic interventions to improve mental health and ameliorate or prevent mental disorders.

Finally, this review has shown that Canadians have much to gain by taking a more global position on what constitutes best evidence around the world. There can be a tendency in high-income countries to pass over research carried out in low- and middle-income countries as not relevant for "our" context. Yet this review demonstrates that information and innovations originating in these countries hold promise for the

Canadian context. The synergies of infectious diseases like TB and mental disorders like depression greatly affect the world's population and therefore must be understood across geographical, cultural, and sociopolitical contexts to ensure that local treatment and support strategies are relevant for those receiving care.

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