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Depression and Its Psychosocial Correlates Among Older Asian Immigrants in North America

A Critical Review of Two Decades' Research

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Objectives: This article critically reviews two decades of empirically based depression studies on older Asian immigrants (OAIs) in North America published in English. The Psychosocial Model of Late-Life Depression is proposed as the conceptual roadmap to help interpret the findings across studies. **Methods:** Using multiple bibliographic databases, this review systematically summarized and evaluated findings in 24 studies in terms of: (a) the prevalence and severity of depression; (b) demographic, psychosocial, cultural, and health risk factors of depression; and (c) methodological approaches and designs. **Results:** The results showed that depression is prevalent among OAIs and is linked to gender, recency of immigration, English proficiency, acculturation, service barriers, health status, relationship with children and family, and social support. However, considerable variability in the results, the sample sizes, and the use of measurements were also found across studies. **Discussion:** Recommendations for future research and the provision of clinical and community services are discussed within the psychosocial model.

Keywords: prevalence of depression; correlate of depression; psychosocial theory of depression; older Asian

Depression represents one of the most frequently reported psychiatric conditions among the older population in North America (Blazer, 2003). According to one estimate, severe depressive symptoms (i.e., with

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four or more depressive symptoms) among older American adults ranged
from 13.1% for the 65 to 69 age group to 19.6% for the 85 and plus age
group (Federal Interagency Forum, 2006a). Researchers have reported that
the prevalence and severity of depression are particularly pronounced
among older Asian immigrants (hereafter referred to as OAIs) in North
America (Iwamasa, Hilliard, & Osato, 1998; Wong & Ujimoto, 1998)—a
rapidly growing segment of the older population in both the United States
and Canada. Empirical studies of depression among OAIs have also
increased significantly in the last two decades. However, to date, no sys-
tematic review has been undertaken to take stock of the findings and knowl-
edge generated from this cumulative body of research. Therefore, the
purpose of this article is to present a critical summary and evaluation of
depression studies on OAIs published over the last two decades, between
1985 and 2006. Special attention is directed towards examining the preva-
lence, the severity, and the correlates of late-life depression among OAIs,
and assessing methodological issues associated with this collection of
empirical works. Furthermore, we present the Psychosocial Model of Late-
Life Depression (George, 2004) as a theoretical scheme to conceptualize
the existing research and research findings and recommend this framework
as a possible conceptual roadmap for guiding future research and practice
on depression among OAIs.

Characteristics of Older Asian Immigrants in North America

The Federal Interagency Forum (2006b) reported that the proportion of
Asians in the United States aged 65 years and more will increase from 2.9%
of the total older Americans in the same age group in 2004 to 7.8% in 2050,
representing a total increase of 169% over the next 5 decades. In Canada,
the percentage of Asian Canadian older adults of the same age group
increased from 4.4% in 1996 to 5.5% in 2000, representing a net increase
of 38% in just over 4 years (Statistics Canada, 1996, 2001a). These data
highlight the rapidly growing trend of OAIs in North America. In terms of
psychological well-being, the cumulative evidence points to high mental
health risks among OAIs (Iwamasa & Sorocco, 2002; Kitano, Shibusawa,
& Kitano, 1997; Lai, 2004a, 2004b) and low utilization of social and psy-
chological services (Kitano et al., 1997; Lai, 2001; Tsai & Lopez, 1997). In
view of the rapid population growth and the concerns over mental health
vulnerabilities among OAIs, the need for better empirical knowledge and

understanding of the well-being of this group cannot be overemphasized (Markides & Miranda, 1997).

The migration history of OAIs in North America further predisposes this population to a greater psychological distress, particularly as a function of stereotypes and discriminations perpetuated against this group (Sue & Sue, 2008). In the United States, as an example, there had been multiple incidents of institutionalized discrimination against Asians, including the Chinese Exclusion Act of 1882, the Filipino Exclusion Act of 1935, the Japanese American Internment Camp in 1942, to name a few (Axelson, 1999). Comparable polices were also found in Canada. Asians were regarded as *unassimilable* and *enigmatic* by mainstream America, and their presence was once considered a threat to American society (i.e., Yellow Peril; Gee, Spencer, Chen, Yip, & Takeuchi, 2007). More recently, paradoxically, Asians have been described under the myth and stereotype of *model minority* by the U.S. media, supposedly exemplifying a well-adjusted and successful group of immigrants. Given the precarious history of Asians in North America, it has been found that depressive symptoms, as related to stereotype and prejudice, are particularly salient among Asian immigrants (Gee et al., 2007; Noh & Kasper, 2003), and expectedly for OAIs.

Although contextual differences clearly exist between United States and Canada (e.g., sociopolitical histories, interracial relations, health care systems), the present review combined depression studies for Asian Americans and Asian Canadians for several reasons. First, recent evidence based on a large-scale epidemiological study has shown that Americans and Canadians are comparable in many health indices, despite divergences in their respective health-care systems (Joint Canada/United States Survey of Health, 2004). Specifically, with respect to depression, recent studies revealed that Americans and Canadians were similar in the reported past-year depression prevalence rates (Vasiliadis, Lesage, Adair, Wang, & Kessler, 2007) and mental health treatment–seeking patterns (Mojtabai & Olfson, 2006; Vasiliadis et al. 2007). The pattern was also found to be true for older Americans and Canadians who were older than 65 years (Joint Canada/United States Survey of Health, 2004). Second, the depression studies reviewed in this article were comparable in terms of their purpose, method (e.g., community-based sample), design (cross-sectional self-report survey), target sample, treatment of data (e.g., correlation and regression analyses), and correlates of depression, regardless of the origin of the sample (United States or Canada). Finally, in view of the small number of existing studies on depression and OAIs, combining the U.S. and Canadian studies afforded more meaningful comparisons, evaluations, and interpretations of the findings over a critical mass of empirical works.

Older Asians in North America represent heterogeneous subgroups of Asians with diverse historical, cultural, religious, linguistic, and immigration experiences (Markides & Miranada, 1997; Mui & Kang, 2006). Asians represent at least 30 diverse groups with varying demographic characteristics and immigration histories to the United States and Canada (Hong & Ham, 2001). For instance, Chinese and Japanese were among the first Asians to migrate to North America in the mid 1800s, whereas large waves of immigration for Filipinos and Koreans to the United States did not occur until the mid-1960s. Most of these groups migrated largely in response to labor demands in North America at the time. On the other hand, large numbers of Southeast Asians (i.e., Vietnamese, Cambodians, and Laos) arrived in the United States in the mid-1970s, most as refugees after the wars in Indochina (Axelson, 1999). It is important to recognize that differences in migration motivations and patterns, as well as educational and socioeconomic statuses among Asian immigrants, predict differential outcomes in cultural adjustment, social mobility, and psychological well-being across subgroups (Kuo, 2004; Sue & Sue, 2008). Previous research, however, has suggested that some generalizations can be made about mental health issues across OAI subgroups in North America (Kitano et al., 1997).Given that an in-depth discussion of Asian subgroups in North America is beyond the scope of the current article, readers are referred to other sources for more thorough reviews (e.g., Axelson, 1999; Hong & Ham, 2001). Even though this article uses the term *older Asian immigrants* throughout and in its title for heuristic purposes, a conscious effort was made by the authors to acknowledge and display Asian subgroup distinctions in the presentation of the data (e.g., Table 1) and the discussion of the findings.

Psychosocial Model of Late-Life Depression

The psychosocial theory of late-life depression, which is also referred to by some as the biopsychosocial theory (Engel, 1980), dictates that the onset and maintenance of depression in older adults are a function of complex interplays among physical, psychological, social, and environmental factors (Areán & Reynolds, 2005; George, 2004). Within this framework, the impact of negative life events (e.g., vascular disease) on depression among older adults is mediated or moderated by a wide range of vulnerability and protective factors. For example, in her model George (2004) outlines the *precursors* of late-life depression in multiple domains at five separate levels as the following: (a) Level I demographics (age, gender, race, ethnicity); (b) Level II early life events/achievements (e.g., education, trauma); (c) Level III later life

Table 1

Summary of Depression Studies on Asian American Older Adults (1985-2006)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Kuo and Guan (2006)	213 community-dwelling Chinese Canadians in Toronto, Canada Mean age = 72.09 years Convenience sample The GDS (30 items) (α = .89)	Depression prevalence rate: 29.1% 4.2% severely depressed 24.9% mildly depressed	Multiple regression analysis Relationship with adult children (−) Social support (−) Canadian acculturation (−) Service barriers (+)	The model explained 33% of variance in the GDS score
Suen and Morris (2006)[a]	100 community-dwelling Taiwanese Americans in a northeastern city in the United States Mean age = 67.39 years Convenience sample The GDS (30 items) (α = .83)	Depression prevalence rate: 16% 9% possible depression (GDS ≥ 11) 7% depression (GDS ≥ 14)	Multiple regression analysis Sleep quality (−) Physical activity (+)	The model explained 25% of the variance in the GDS score
Mui and Kang (2006)	407 community-dwelling Asian Americans of Chinese, Korean, Indian, Filipino, Vietnamese, and Japanese backgrounds in New York Mean age = 72.4 years Random sample The GDS (30 items) (α = .85 to .92)	Depression prevalence rate: 40.5% 30.9% mildly depressed (GDS ≥ 11) 9.6% severely depressed (GDS ≥ 21) Group differences in depression incidences: Japanese (76%) > Vietnamese (64%) > Indians (50%) > Chinese (45.7%) > Korean (24%) > Filipinos (15.4%)	Linear regression analysis for the entire sample Religiosity (−) Number of children within a 2-hour drive (−) Assistance from children (+) Length of residence (+) Perceived health (−) Number of stressful life events (+) Perceived cultural gap (+)	The model explained 47% of the variance in the GDS score

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Jang, Kim, and Chiriboga (2005)	230 community-dwelling Korean Americans in Tampa Mean age = 69.8 years Convenience sample The GDS (15 items) (α = .79) and the CES-D (10 items) (α = .80)	Depression prevalence rate: GDS: 24% probable depression CES-D: 30% probable depression	Correlation analysis Age (+) Gender (female > male) Marital status (unmarried > married) Education (less than high school > high school and above) Chronic conditions (+) Acculturation (−)	
Lai (2005)[b]	98 community-dwelling Taiwanese Canadians across multiple cities in Canada Mean age = 67.9 years Random sample The GDS (30 items) (α = .85) and the CES-D (10 items) (α = .80)	Depression prevalence rate: 21.5% 13.3% mildly depressed 8.2% moderately to severely depressed	ANCOVA Positive emotions (high acc. > low acc.) Multiple regression analysis Attitude towards aging (−) Physical health (−) Marital status (single > married) Financial status (−) Income (−) Identification with Chinese health beliefs (−) Service barriers (+)	The model explained 51% of the variance in the GDS score

(continued)

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Lai (2004a)[b]	1,537 community-dwelling Chinese Canadians across multiple cities in Canada Mean age = 74.1 years Random sample The GDS (15 items)	Depression prevalence rate: 4.2%	*t* Test Living arrangement (alone > not alone) Age (+) Gender (female > male) Financial adequacy (−) Religion (with religion > without religion) Education level (−) Social support (−) Income (−) Chronic illness (+) Dependence in the activities of daily living (ADL) (+) Physical health (−) Self-perceived health (−) Logistic regression analysis Financial adequacy (−) Religion (religion > no religion) Social support (−) Chronic illness (+) Self-perceived health (−) Identification with Chinese cultural values (+) Cultural barriers (+)	

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Gellis and Taguchi (2004)	97 community-dwelling Japanese Americans Mean age = 76.8 years Convenience sample The GDS (15 items) and the SF-12 Health Survey–Mental	Risk factors for depression: negative life events, family history of depression, and poorer physical health	ANOVA Health status (–) General health (–) Social support (+)	
Lai (2004b)[b]	444 community-dwelling Chinese Canadians from mainland China across multiple cities in Canada Mean age = 73.82 years Random sample The GDS (15 items)	Depression prevalence rate: 23.2% 16.7% mildly depressed 6.5% moderately to severely depressed	Correlation analysis Religion (Yes > No) Marital status (single > married) Living arrangement (alone > not alone) Financial adequacy (–) Life satisfaction (–) Perceived service barriers (+) Number of chronic illnesses (+) ADL (–) Instrumental ADL (–) General physical health (–) Positive attitude toward aging (–) Chinese ethnic identity (–)	The model explained 33.4% of the variance in the GDS scores

(*continued*)

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
			Multiple regression analysis	
			Number of chronic illnesses (+)	
			Positive attitude toward aging (−)	
			General physical health (−)	
			Financial adequacy (−)	
			Chinese ethnic identity (−)	
			Perceived service barriers (+)	
			Life satisfaction (−)	
			Living alone > not living alone	
			Length of residency (−)	
Suen and Tusaie (2004)[a]	100 community-dwelling Taiwanese Americans in a northeastern city in the United States Mean age = 67.39 years Convenience sample The GDS (30 items) ($\alpha = .83$)	Depression prevalence rate: 16% 9% possible depression (GDS score ≥ 11) 7 % depression (GDS score ≥ 14)	*t* Test Physical illness (+)	
Wu, Tran, and Amjad (2004)	177 community-dwelling Chinese Americans in Boston Mean age = 71.8 years Convenience sample The CES-D (7 items) ($\alpha = .74$)	N/R	Logistic regression analysis for the entire sample Not married > married Self-rated health status (−) Frequency of visits to physician (+)	Somatic symptoms score > depressive affect score, suggesting possible somatization of depression

(continued)

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Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
			Logistic regression for men versus women separately	
			Men:	
			Frequency of visits to physician (+)	
			Women:	
			Not married > married	
			Self-rated physical health (−)	
			Back or neck problem > no such problem	
			Frequency of visits to traditional Chinese doctor (+)	
Lai (2003)	54 community-dwelling Chinese Americans in Seattle	Depression prevalence rate: 20.6%	Multiple regression analysis	
	Mean age = 74.82 years	14.9% mildly depressed	Self-perceived health (+)	
	Convenience sample	5.7% moderately to severely depressed	Satisfaction with family support (−)	
	The GDS (15 items) (α = .88)		Reported illness (+)	
Lai and Yuen (2003)	96 community-dwelling Chinese Canadians	N/R	Hierarchical logistic regression analysis	Gender not predictive with other demographic variables
	Mean age = 71.7 years		Gender (women > men)	
	Conveniences sample		Physical limitation (+)	
	The GDS (15 items)			

(continued)

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Takeshita et al. (2002)	3,196 community-based cohort of Japanese American men in the Honolulu Heart Program Prospective Cardiovascular Study since 1965 Mean age = 77.4 years CES-D (11 items)	N/R	*t* Test Body mass index (−) Physical activity index rating (−) Systolic blood pressure (−) Diastolic blood pressure (−) χ^2 test Marital status (yes < no) Stroke (yes > no) Cognitive impairment (yes > no) Survival analysis Mortality (+)	Mortality (physically healthy but depressed > physically ill but depressed)
Casado and Leung (2001)	150 community-dwelling and residential-dwelling Chinese Americans in Houston Mean age = 72 years Convenience sample Chinese Depressive Symptoms Scale-16 (α = .86)	N/R	*t* Test Contact with relatives (−) Home country visits (−) Country of origin (Mainland China, Hong Kong, and Vietnam > Taiwan) Correlational analysis Migratory grief (+) Acculturation: Asian cultural preference > American cultural preference	The model explained 53.9% and the migratory grief alone explained 41.5% of the variance in the depression score

(continued)

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
			Age (−)	
			Length of residency (−)	
			Multiple regression analysis	
			Age (−)	
			Home country visits (+)	
			English proficiency (−)	
			Migratory grief (+)	
Shibusawa and Mui (2001)	131 community-dwelling Japanese Americans Mean age = 77 years Convenience sample The GDS (30 items)	Depression prevalence rate: 19.5% 18% in mild range (GDS ≥ 11) 1.5% in moderate to severe range (GDS ≥ 21)	Multiple regression analysis Fear of dependency (+) Self-rated health (−) Number of close friends (−) Emotional support (−)	The model explained 39.8% of the variance in the GDS score
Stokes, Thompson, Murphy, and Gallagher-Thompson (2001)	102 community-dwelling Chinese Americans in Santa Clara, California Mean age = 72 years Convenience sample The GDS (30 items)	Depression prevalence rate: 29.4% 25.5% in mild range (GDS score ≥ 11) 3.9% in moderate to severe range (GDS score ≥ 21)	Descriptive statistics Most likely depressed: age 60 to 69, living with spouses or children, financial status below average, poor, less than high school education, length of residency in the United States less than 5 years, and poor health	

(continued)

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Mui (2001)	67 community-dwelling Korean Americans in a northwestern city of United States Mean age = 69.2 years Convenience sample The GDS (30 items) (α = .88)	Depression prevalence rate: 44.8% 35.8% in mildly depressed (GDS score ≥ 11) 9% in severely depressed (GDS score ≥ 21)	Multiple regression analysis Poor self-rated health (+) Living alone > living with others Number of stressful life events (+) Dissatisfaction with family help (+) Number of good friends (−)	The model explained 40% of the variance in the GDS score
Lai (2000)	96 community-dwelling Chinese Canadians in Calgary, Canada Mean age = 72 years Random sample selected from a membership list of a senior center The GDS (15 items)	Depression prevalence rate: 20.9% 9.4% in mild range (GDS ≥ 5) 11.5% in moderate to severe range (GDS ≥ 10)	Multiple regression analysis Age (−) Number of illnesses (+) Length of residency (+) English proficiency (−) Physical health (−)	The model explained 40.9% of the variance in the GDS score
Mui (1998)	47 community-dwelling Chinese Americans Mean age = 75.5 years for living alone; 73.2 years for living with others Convenience sample The GDS (15 items)	N/R	Logistic regression analysis Dissatisfaction with family support (+) Poor self-rated health (+) Living alone > living with others Number of stressful life events (+) Levels of education (+)	

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Table 1   (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Lam, Pacala, and Smith (1997)	45 community-dwelling Chinese Americans in Minnesota Age ranged from 59 to 89 years Convenience sample The GDS (30 items)	Depression prevalence rate: 31.1% 20% (GDS > 11) 11.1% (GDS > 15)	Correlational analysis Life satisfaction (−) Self-rated health (−) Social support (−) Acculturation (+) English proficiency (−) Life satisfaction (−) Years residing in United States (−) ADL (−) Instrumental ADLs (−)	
Lee, Crittenden, and Yu (1996)	200 community-dwelling Korean Americans in Chicago Mean age = 71 years Convenience sample The CES-D (20 items) ($\alpha = .87$)	N/R	Multiple regression analysis Contacts with friends (−) (i.e., monthly or less > more frequent) Contacts with children (+) (i.e., monthly or daily contacts > weekly contact) Instrumental support (−) Emotional support (moderator)	

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Mui (1996)	50 community-dwelling Chinese Americans Mean age = 75 years Convenience sample The GDS(30 items)(α = .90)	Depression prevalence rate:18% 16% in mild range 2% in moderate to severe range	Logistic regression analysis Self-rated health (−) Living alone > living with others Satisfaction with family help (−)	The model explained 49% of the variance in the GDS score
Pang (1995)	Part I: 674 community-dwelling Korean Americans in Washington, DC received the DIS-III Part II: A subsample of 69 received the SKIGD in addition Convenience sample (1) The DIS-III; (2) The KDIS-III; (3) The SKIGD	Depression prevalence rate: 7.12% using the DIS-III 8.31% using the KDIS-III	Descriptive statistics Depressed more likely to be female, less educated, and widowed Both depressed and nondepressed experienced somatic symptoms, loneliness, stress, overwork, and worries	

Table 1 (continued)

Study/Authors	Sample and Measure	Estimated Prevalence and Severity	Significant Predictors/Correlates	Comments
Yamamoto et al. (1985)	122 community-dwelling and residential-dwelling Japanese Americans in Los Angeles Mean age = 80.7 years Convenience sample The DIS- III (assessed psychiatric diagnosis)	Community-dwelling older adults: 27% dysthymic disorder; 3% major depressive disorder Residential-dwelling older adults: 39% dysthymic disorder; 16% major depressive episodes	N/R	

Note: The "−" sign represents a negative relationship and the "+" sign represents a positive between the variable and the depression score. The ">" and "<" signs indicate comparisons made on depression scores based on categorical variables (e.g., gender, marital status, living arrangement) or variables assessed dichotomously (e.g., Yes or No responses). GDS = Geriatric Depression Scale; CES-D = Center for Epidemiological Studies-Depression Scale; SKIGD = Semi-Structured Korean Interview Guide for Depression; DIS = Diagnostic Interview Schedule; KDIS = Korean Diagnostic Interview Schedule; N/R = not reported.

a. The same data set was reported in Suen and Tusaie (2004) and Suen and Morris (2006). However, due to the differences in the focuses of the two articles, both are included in this review.

b. Studies by Lai (2004a, 2004b, 2005) were based on the subsamples of the same, large-scale original data set as reported in Lai (2004a). The original sample consisted of Chinese Canadian older adults randomly selected from local telephone directories from Calgary, Edmonton, Montreal, Vancouver, Victoria, Winnipeg, and Toronto.

events/achievements (e.g., socioeconomic status, income, marital status); (d) Level IV social integration (e.g., religious and community participation); (e) Level V risk and protective factors (e.g., social support); and (f) Level VI provoking agents and coping efforts (e.g., life stress and coping). Recently, the Psychosocial Theory of Depression has found increasing empirical support from the general gerontological research (Blazer, 2003; George, 2004), as well as research on the etiological beliefs of depression among ethnic minority older adults (Lawrence et al., 2006; Pang, 1998).

Based on our review of the OAIs depression studies, there are currently no explicit theories of depression that focus on the OAI sample. However, we observe and contend that the general assumptions of the psychosocial model of late-life depression are in fact implicated in the majority of these studies, judging from their contents and focuses. Therefore, it is proposed that the Psychosocial Model is a conceptually relevant and practically useful framework in recapitulating and interpreting existing depression studies among OAIs.

Grounded in the Psychosocial Theory of Depression, an in-depth understanding of the etiology and the pathways of depression among OAIs is important. This understanding involves not only a comprehensive but also concise discernment of all the relevant antecedents of depression (Areán & Reynolds, 2005; Blazer & Hybels, 2005). Aligning the current review with this model, this article focuses on three major themes in the depression studies of OAIs: (a) prevalence and severity of depression; (b) risk and protective factors (demographic, psychosocial, cultural and health correlates of depression); and (c) methodological strengths and weaknesses.

Method

An exhaustive search of the literature was conducted to identify articles published in English that pertained to the focus and the target population of the current review. First, to ensure the relevance and recency of the review, the research team decided to limit the search to empirically based depression studies published between 1985 and 2006. Second, the search was performed on key bibliographic databases, which included *PsychInfo*, *Medline*, *Sociology Abstract*, and *Abstracts in Social Gerontology*. The keywords "depression," "depressive symptom," and "psychological distress" were used to denote the target psychological condition in the search. Only studies in which depression was quantitatively measured and treated as a dependent variable were included. In addition, broad ethnic descriptors, including "Asian American" and "Asian Canadian" as well as specific group designations

including "Chinese American", "Korean American", "Japanese American", "Filipino American", and so on, were used to capture the diverse ethnicities associated with the target population of this review. Finally, the members of the research team manually scanned the reference sections in the selected articles for additional published works on the subject.

Results

General Characteristics of the Studies

A total of 24 published depression studies conducted with 21 distinct samples (two sets of studies were based on the same samples) across the United States and Canada were identified (see Table 1). In all, 17 studies were conducted in the United States and the other 7 in Canada. Of these studies, 15 focused exclusively on Chinese or Taiwanese American older adults, 4 exclusively on Japanese American older adults, and 4 exclusively on Korean American older adults. A comparative study by Mui and Kang (2006), however, included six subgroups of older Asian Americans. Studies of depression of OAIs from other Asian backgrounds were not found.

Sampling. The sample size of the existing depression studies of OAIs ranged from $N = 45$ (Lam, Pacala, & Smith, 1997) to $N = 3,196$ (Takeshita et al., 2002). The majority of studies had samples obtained through non-probability methods and were typically convenience samples recruiting from local community centers, social services, and/or religious organizations. However, three exceptions were found. Using Chinese surnames recorded on the telephone listings of seven major Canadian cities, Lai (2004a) randomly selected older Chinese to take part in a depression study via telephone interview. A total probability sample of 1,537 Chinese Canadian older adults aged 65 years and above took part in that study. A number of published studies by Lai (e.g., Lai, 2004b, 2005) were based on the reanalysis of data with different subsamples (e.g., Mainland Chinese and Taiwanese) within this original data set. The other large-scale study was reported in Takeshita et al. (2002). The study was based on the data collected for the Honolulu Heart Program from 1991 to 1993, a longitudinal epidemiological investigation of the health condition of Japanese American men. More recently, Mui and Kang (2006) used the area probability sampling technique to draw older Asian participants from five boroughs across New York City. The result yielded an ethnically diverse sample, representing six Asian subgroups in the United States, including 407 Chinese, Japanese, Korean, Indian, Filipino, and Vietnamese older adults.

Measures. Across studies, the most frequently used measure of depression was the Geriatric Depression Scale (GDS; Yesavage, Brink, Rose, Lum, Huang, & Leirer, 1983). Various translations of the GDS (e.g., GDS-Chinese) were adopted in 16 of the reviewed studies, including both the GDS-Long Form (GDS-LF: 30 items) and the GDS Short Form (GDS-SF: 15 items). Overall, good internal consistency for the GDS was indicated across several studies, with α ranging from .83 to .92 for the GDS-Long, and α ranging from .79 to .88 for the GDS-Short. The next most commonly employed depression measure was the Center for Epidemiologic Studies—Depression Scale (CES-D), which was found in four of the studies. However, the number of items on the CES-D used across the four studies varied significantly, from 7 to 20 items, with Cronbach's alpha ranging from .74 to .87.

Variances in the measures used for the other correlates of depression were also apparent across studies. For example, the construct of social support was operationalized in a variety of ways across studies. Only three studies employed validated and multidimensional scales to assess OAIs' social support, including the use of the Older Americans Resources and Services Scale in Lai's (2004a, 2004b, 2005) studies, the Multidimensional Scale of Perceived Social Support in Kuo and Guan's (2006) study, and the Lubben Social Network Scale in Gellis and Taguchi's (2004) study. However, the remaining studies used a wide array of unstandardized questions to inquire about the participants' social network and contacts. Similar inconsistency in measurement was also observed with respect to the assessment of OAIs' health condition, socioeconomic status, acculturation, and so on.

Status of Depression

A great deal of variability is also evident in the instruments and the criteria used for assessing depression in this body of literature. In view of this psychometric limitation in the existing studies, the comparability and the equivalence of the results across studies are only tentative. The findings discussed in the ensuing sections must be considered with this cautionary note in mind.

Prevalence rate. The prevalence rates for depression among OAIs varied depending on the characteristics and the ethnicity of the samples as well as how depression was measured. Among the 15 studies conducted with only Chinese older adults, the depression prevalence for this population was found to range from 18% to 31.1% (e.g., Lai, 2000, 2004a; Stokes, Thompson, Murphy, & Gallagher-Thompson, 2001). However, in Mui and Kang's (2006) multiple-group study, the Chinese subsample ($N = 105$) reported an exceptionally higher

depression prevalence rate (45.7%) than did previous studies. Nonetheless, the overall trend of the data appears to point to an approximate prevalence rate of 20% for depression among community-dwelling Chinese older adults. In the case of Korean older adults, one study by Pang (1995) reported the depression prevalence to be 7.12% and 8.31%, using the Diagnostic Interview Schedule-II (DIS-II) and the Semi-Structured Korean Interview Guide for Depression (SKIGD), respectively. More recent studies, however, revealed the depression prevalence rate to be higher in this population. In a northwestern city of the United States, Mui (2001) found a depression prevalence rate of 44.8% in a small sample ($N = 67$) of older Koreans. Jang, Kim, and Chiriboga (2005) found that 24% and 30% of the older Korean participants in Tampa were reported to show *probable depression* using the GDS-SF (scored >5) and the CES-D-SF (scored >10), respectively. The 24% prevalence rate based on the GDS-SF is consistent with what Mui and Kang (2006) found in the Korean subsample of their multiple study using the GDS-LF.

On the other hand, two separate studies reported prevalence rates of depression for community-dwelling Japanese American older adults to be 18% (Shibusawa & Mui, 2001) and 3% (Yamamoto et al., 1985). Yamamoto et al. (1985) reported a 16% prevalence rate of major depressive episodes among the residential-dwelling Japanese American older adults in Los Angeles, as compared with 3% among their community-dwelling counterparts. Mui and Kang (2006) found the depression prevalence rate of their Japanese subsample ($N = 25$) to be 76%. Mui and Kang's (2006) study was also the only study that examined the prevalence of depression among older adults of other Asian subgroups. They reported a depression prevalence rate of 64% among older Vietnamese Americans ($N = 25$), 50% among older East Indian Americans ($N = 100$), and 15.4% among older Filipino Americans ($N = 52$). The authors of the study did caution readers in interpreting the results, because critical sampling errors might have occurred when the population estimates were established on subgroups of very small sample size, as was the case in that study. On the whole, however, the evidence does support the contention that significantly higher depression rates existed among OAIs, as compared with the 18% to 20% prevalence rate estimated among community-dwelling, general older adults (Blazer, 2003).

Severity of depression. There were inconsistencies in the nosology used by researchers across studies in reference to the severity of depression, including *mildly depressed*, *moderately depressed*, *severely depressed*, *probable depression*, and *possible depression*. Across single-sample studies of only older Chinese adults, the proportions of moderate to severely depressed individuals

ranged from 2% (Mui, 1996) to as high as 11.5% (Lai, 2000), whereas the proportion of mildly depressed individuals ranged from 9% (Suen & Morris, 2006) to 25.5% (Stokes et al., 2001). Among the studies on Japanese American older adults, Shibusawa and Mui (2001) reported that 1.5% of their participants were in the moderate to severe range and 18% were in the mild range. Based on a subsample of 100 Korean Americans, Mui and Kang (2006) reported that 3% of their respondents were in the moderate to severe range and 21% were in the mild range. Individuals in the Vietnamese, Indian, and Filipino samples in Mui and Kang's (2006) study were reported to experience the moderate to severe depression rates of 4%, 10%, and 3.9%, respectively and the mild depression rates of 60%, 40%, and 11.5%, respectively.

Level I Correlates of Depression: Demographic Variables

Gender. Gender differences in depression were examined in 13 of the studies reviewed. Overall, depression was reported to be more prevalent among older Asian women than older Asian men based on correlational analyses. Although the statistical significance of the gender effect was not consistently found across studies, women were significantly more depressed than men in four studies of Chinese Canadian older adults (Lai, 2003, 2004a, 2005; Lai & Yuen, 2003). There also appeared to be gender differences in terms of predictors of depression among Asian older adults. For example, Wu, Tran, and Amjad (2004) found several significant predictors of depression for older Chinese American women, including being married, having a poorer physical health, suffering from back or neck problems, visiting traditional Chinese doctors more often, and having less social support. On the other hand, the significant predictors of depression for older Chinese American men included a longer length of stay in the United States, more frequent visits to physicians, and suffering from back or neck problems.

However, in 9 of the studies reviewed, the gender effect associated with depression disappeared when the influences of the demographic and social variables were controlled in regression analyses. Consequently, gender differences related to depression might be attributable to gender-related psychosocial and contextual factors (e.g., socioeconomic status, education, acculturation) rather than inherent characteristics associated with gender differences (e.g., biological or physiological predispositions; Blazer, 2003; Kuo & Guan, 2006).

Age. The mean ages for the samples in the studies reviewed ranged from 67.4 to 80.7 years. Among the 17 studies that tested the relationship

between age and depression, 6 studies (35%) reported significant but mixed findings. Kuo and Guan (2006) and Lai (2004a) found that Chinese Canadian older adults who were older tended to be more depressed. Conversely, 3 studies suggested that younger OAIs were more depressed (Casado & Leung, 2001; Lai 2000, 2005). Using regression analyses, only 2 out of the 12 studies (Casado & Leung; 2001; Lai, 2000) demonstrated age as a significant predictor of depression. Therefore, the association between age and depression among OAIs as it currently stands is inconclusive—a finding which is consistent with what has been observed in the general older adult population (George, 2004).

Living arrangement. In six of the studies reviewed (Lai, 2004a, 2004b; Mui, 1996, 1998, 2001; Mui & Kang, 2006), OAIs who lived alone showed more depressive symptoms than those who lived with others. In four of these studies, living alone was a positive predictor of depression in Chinese American older adults (Lai, 2004a; Mui, 1996, 1998, 2001). However, the opposite effect was found in Stokes et al.'s (2001) study: a larger proportion of older Chinese Americans who lived with spouses or children experienced depression, compared with those who lived alone. It is likely that living arrangement in and of itself is not a sufficient determinant of depression. Rather, the relative stresses associated with living alone versus with others might be important to examine.

Level II Correlates of Depression: Early Life Events/Achievements

Education. Two studies (Pang, 1995; Stokes et al., 2001) found that older Asian Americans with less than a high school education were more at risk for depression than those with an education of high school or above. Moreover, Lai (2004a) found a greater number of individuals with lower education attainment among the depressed group of Chinese Canadian older adults than the nondepressed group in his study. These findings were supported by Jang, Kim, and Chiriboga's (2005) study of older Korean Americans; this study found that less education predicted depression in this group. Conversely, an opposite effect was revealed in Mui's (1998) investigation of older Chinese Americans, in that more education predicted higher levels of depression. However, seven other studies found that education was not significantly associated with depression.

Level III Correlates of Depression: Later Life Events/Achievements

Socioeconomic status (SES). A number of studies adopted older adults' financial status to represent their SES. Among these investigations, one study by Lai (2004a) demonstrated that older Chinese Canadians who were depressed tended to report having lower income than those who were not depressed. Other studies also found that poorer financial status (i.e., lower adequacy of finances, less satisfaction with economic status) was a significant correlate and/or predictor of depression (Kuo & Guan, 2006; Lai, 2004a, 2004b, 2005). Two studies examined the occupational status of older Chinese Americans, but found it to be of no effect on depression (Lam et al., 1997; Suen & Morris, 2006). Despite the above findings, 50% of the studies that included SES indexes (8 of the 16 studies) did not find a significant relationship between depression and occupational status, income, or financial status in OAIs. In view of these results, there is currently no reliable evidence to link SES directly to depression among this population.

Marital status. In six of the studies reviewed, unmarried status (i.e., being single or widowed) was linked to more depressive symptomatology among OAIs. For example, Pang (1995) found that a greater proportion of Korean American older adults who were widowed reported higher levels of depression, compared with those who were married. Two other studies specifically found that being single predicted depression in regression analyses (Lai, 2005; Wu et al., 2004). Wu et al. (2004) found gender differences in the relationship between marital status and depression. Being unmarried predicted depression in older Chinese American women but not in older Chinese American men.

Level IV Correlates of Depression: Social Integration

Length of residency in the host country. In 5 of the 13 studies that investigated the link between length of residency in the United States or Canada and depression among OAIs, significant relationships were found (Casado & Leung, 2001; Lai, 2004b; Lam et al., 1997; Mui & Kang, 2006; Stokes et al., 2001). Lai (2004b) found that shorter length of residence predicted depression in a sample of older Chinese immigrants from Mainland China

living in Canada. More specifically, Stokes et al. (2001) found that a greater proportion of Chinese American older adults who lived in the United States for less than 5 years were depressed, as compared with those who lived in the United States for more than 5 years. In the study by Mui and Kang (2006), however, the researchers found that the length of stay of the mixed Asian sample in the United States positively predicted depression. Despite this discrepancy, the majority of the existing findings seem to suggest that recently arrived older Asian immigrants are more at risk for depression than their long-term counterparts.

Language competency in English. There was considerable variability in how the English language competency of OAIs was assessed across studies. The assessment of language competency ranged from "speaking English or not" (Lai, 2000, 2003; Lai & Yuen, 2003) to language preference (Shibusawa & Mui, 2001) to language barriers limiting at least one activity (Wu et al., 2004). Three studies revealed a significant negative correlation between speaking English and depression scores (Lai, 2005; Lam et al., 1997; Mui & Kang, 2006). Two other studies found this relationship based on regression analyses (Casado & Leung, 2001; Lai, 2000). Hence, the consensus seems to support the observation that older Asians' ability to function in English is indeed an important protective factor against depression.

Acculturation. Acculturation in the host society is a critical cultural adjustment experience that is unique to all immigrant older adults, including OAIs (Kuo, in press; Tsai & Lopez, 1997). In 9 studies, acculturation and acculturation-related factors were investigated. More often than not, however, proxy indicators were used to infer OAIs' acculturation levels. For example, Shibusawa and Mui (2001) used older Japanese Americans' preference for language (English vs. Japanese) as an indicator of acculturation. Several studies assessed the participants' language, food, media, and social preferences to identify the extent of acculturation in the host country (e.g., Jang et al., 2005; Lee, Crittenden, & Yu, 1996).

Jang et al. (2005) found that, after controlling for the effects of demographic variables and chronic illnesses, lower acculturation (i.e., being *less American* and *more Korean*) predicted depression among older Korea Americans. Those with lower acculturation also tended to report lower levels of positive emotions and higher levels of negative emotions. In Casado and Leung's (2001) study, poor English proficiency, but not ethnic preferences, was a predictor of depression among older Chinese Americans.

However, in Lee et al.'s (1996) study of older Korean Americans, level of preparation for American life, English proficiency, and exposure to English media did not predict depression. Similarly, Shibusawa and Mui (2001) did not find language preference to be predictive of depression in a sample of Japanese American older adults.

Only one study adopted a bidimensional theoretical model of acculturation to study older Chinese Canadians' depression, in terms of their cultural identification with Canadian values versus Chinese values (Kuo & Guan, 2006). The authors identified differential effects on depression depending on the cultural orientations of the participants. Whereas a weaker identification with Canadian values was found to predict depression, identification with Chinese values had no effect on depression. In summary, the majority of the studies suggested that a weaker cultural orientation towards the host culture is linked to more depressive symptomatology among OAIs.

Community service and support. Barriers to seeking help and support from public, social, and psychological services were frequently reported in the studies reviewed. The extent to which older immigrants are able to effectively interact with their immediate communities, neighborhoods, and service systems directly relates to the Level IV "Social Integration" factors of depression (George, 2004). In general, negative correlations between extrafamilial support (e.g., community or seniors' services) and depression were found across studies (e.g., Lai, 2004b; Lee et al., 1996). Using regression analyses, two separate studies found that the perception of service barriers to health and social services was a significant predictor of depression in community-dwelling Chinese older adults in Canada (Kuo & Guan, 2006; Lai, 2004b). This finding further underscores the need for social and community services to offer support to OAIs (Lai, 2000).

Level V Correlates of Depression: Risk and Protective Factors

Although health status is not considered a psychosocial variable per se in George's (2004) Model of Depression, the extent to which health problems might lead to chronic stress or strain in older adults is likely to represent a Level V risk factor for depression. The inclusion of health-related variables was found in 17 of the 21 studies reviewed. These variables were operationalized and represented by a wide variety of indexes across studies. However, the general finding supported an inverse relationship between health status and depression among OAIs.

General health status. Seven studies measured general health status using the English or Chinese versions of the SF-12 Health Survey (Ware, Kosinski, & Keller, 1995) or the SF-36 Health Survey (Ren, Amick, Zhou, & Gandek, 1998). In four studies, lower levels of physical healthwere significantly correlated with depression (Gellis & Taguchi, 2004; Lai, 2000, 2003, 2004b), and three of these studies further demonstrated that poorer physical health was a significant predictor of depression in OAIs (Lai 2000, 2004b, 2005). Additionally, Lai and Yuen (2003) found that greater physical limitation significantly predicted depressive symptoms among older Chinese Canadians.

Self-perceived health status. Typically, studies evaluated the OAIs' views of health status by instructing participants to directly rate their overall levels of health. In 13 out of 15 of these studies, the results supported a significant negative relationship between self-perceived health status and depression. Seven studies found a significant negative correlation between self-perceived health and depression. One study found that depressed OAIs reported poorer health than their nondepressed counterparts (Lai, 2004a). Using regression analyses, 9 studies found that poorer health status was a significant predictor of depression. However, self-rated health status was not a significant predictor of depression among older Chinese Canadians in Kuo and Guan's (2006) study, after the effects of demographics, SES, and financial status were controlled.

Illnesses. Physical illnesses and depression were investigated in 10 studies. Pang (1995) reported that a higher proportion of depressed individuals reported a variety of somatic symptoms. Four studies found that suffering from a greater number of chronic illnesses was associated with depression (Lai, 2004a, 2004b, 2005; Suen & Morris, 2006). These findings were further supported by three studies on older Chinese Canadians, in which chronic illnesses were a significant predictor of depression (Lai 2000, 2004a, 2004b). In addition, Wu et al. (2004) found that chronic neck pain, chronic back pain, and arthritis were significant predictors of depression among older Chinese Americans. Finally, Takeshita et al. (2002) found that depressed older Japanese American men were more likely to have suffered from a stroke in the past than their nondepressed counterparts.

Functional status. Four studies investigated the functional status of OAIs (Lai, 2004a, 2004b, 2005; Lam et al., 1997). In one study, depressed Chinese Canadian older adults were less functionally able due to more

dependence on others in terms of activities of daily living and instrumental activities of daily living than their nondepressed counterparts (Lai, 2004a). Similar results were found in Chinese Canadian older immigrants from Mainland China (Lai, 2004b) as well as a sample of Chinese American older adults (Lam et al., 1997).

Health beliefs and behaviors. Four studies investigated the relationship between health beliefs or behaviors and depression. Wu et al. (2004) found that depression was more prevalent among Chinese American older adults who had more frequent visits to physicians and traditional Chinese doctors. There was also a significant interaction effect with gender. The frequency of physician visits predicted depression in older men, whereas the frequency of traditional Chinese doctor visits predicted depression in older women. In terms of traditional health beliefs (e.g., the use of Chinese medicine), one study demonstrated that those who were depressed tended to endorse more Chinese health beliefs than those who were not depressed (Lai, 2004a). In contrast, ascribing to fewer Chinese health beliefs was predictive of depression in another study of older Chinese Canadians (Lai, 2005).

Interpersonal support. Interpersonal support is a critical social precursor for depression and thus is frequently examined in the general older adult population (Areán & Reynolds, 2005; Blazer & Hybels, 2005), as well as the OAI literature. Across the studies reviewed, social support was assessed in terms of family versus extrafamilial interpersonal sources, representing an essential Level V risk factor for depression (George, 2004).

Family support. Among the studies reviewed, family support was often assessed using ratings of OAIs' perceived relationships with their children, satisfaction with family care or concern, and ratings of familial emotional support. Overall, the results supported an inverse relationship between depression and the quality of the relationship between OAIs and their families. For instance, Lai (2003) found that older Chinese Canadians who reported low levels of perceived satisfaction with family care and poor self-perceived health status were likely to experience higher levels of depression. This result is consistent with reported findings among older Korean Americans (Mui, 2001). Kuo and Guan (2006) also found that older Chinese Canadians' rating of the quality of their relationships with adult children was a significant negative predictor of depression. The authors suggested that the buffering effect of family social support could be effectively understood within the context of Chinese cultural values, which

emphasize family cohesion, loyalty, and filial obligations. Paradoxically, Mui and Kang's (2006) study found that whereas having more children within a 2-hour drive predicted lower depression among older Asian Americans, having more assistance from one's children predicted higher depression in this population. This latter point further highlighted the importance of the interactive *quality* of parent–child relationship in offsetting depression in older Asians, as opposed to the *quantity* (amount) of assistance received by older Asians. In the same study, it was further revealed that older Asians' perception of the cultural gap between them and their children was positively predictive of depression in this sample.

Other studies assessed quantitative indicators of social support based on frequency of contacts with relatives, frequency of contact with friends, and size of social network. For example, Lee et al. (1996) found that having larger close social networks and more frequent contacts with people from these networks was associated with better mental health outcomes among older Korean Americans. However, there were also differential effects between contacts with friends versus children. Having infrequent (monthly or less) contacts with friends increased risk for depressive symptomatology for these older adults, and having either too frequent (daily) or too infrequent (monthly) contacts with children also increased such a risk.

Level VI Correlates of Depression: Provoking Agents and Coping Efforts

Stress and coping. The interactions among stressful life events, coping, and depression are integral to most psychosocial models of depression (e.g., Billings & Moos, 1982). George (2004) characterizes them as Level VI risk factors or provoking agents of depression in late life. Despite their conceptual importance, the effects of stress and coping on depression were only tangentially examined in a handful of studies reviewed. Based on a regression analysis, Mui (2001) revealed that the number of stressful events experienced by older Korean Americans in the previous year was a significant predictor of depressive symptom, even after controlling the effect of demographic and health variables. In a diverse sample of older Asian Americans, Mui and Kang (2006) found that not only was the number of stressful events predictive of depression, but acculturation-specific stress, such as cultural gap, also was an additional predictor of depression among older immigrants. Similarly, Casado and Leung (2001) found that a greater degree of migratory grief experienced by older Chinese Americans corresponded with higher levels of depressive

symptoms. Furthermore, Shibusawa and Mui (2001) observed that the need to seek and depend on family members for care is a major stressor among Japanese older adults in the United States. A total of 24% of the participants who expressed a fear of dependency were mildly depressed, as compared with 10.3% of those who did not. Surprisingly, there was only one study that actually measured OAIs' coping in response to depression. Kuo and Guan (2006) measured how older Chinese Canadians would cope with a hypothetical scenario of depression. The study found that coping was significantly correlated with lower depression scores. Currently, the empirical examination of life stressors and coping in relation to depression is a seriously understudied area within the OAI depression literature; it deserves further research to ascertain the potential mediating effect of coping on depression.

Summary and Conclusion

The objective of the present narrative review is to summarize and evaluate the current state of knowledge pertaining to the prevalence, the severity, and the risk factors of depression among OAIs in North America. This review adopts the Psychosocial Model of Late-Life Depression to interpret and organize current findings of the existing depression studies. Overall, the data on the prevalence of depression cumulated over the past 20 years appear to suggest that community-dwelling OAIs are at a higher risk for depression than older adults in the general population. This finding, however, must be viewed with caution, given the considerable variability in the manner depression was operationalized, measured, and categorized among these studies. Additionally, a number of critical demographic, interpersonal, cultural, and stress antecedents have been identified that consistently predict depression in OAIs across the studies. This offers support for the Psychosocial Model as it applies to OAIs. Collectively, these studies indicated that depression is most likely to be found among OAIs who (a) are women, (b) are more recent immigrants, (c) lack proficiency in English, (d) are low in acculturation in their host societies, (e) perceive difficulties in accessing social and community services, (f) are suffering from poor physical and health conditions, (g) receive minimal family support or consider their relationship with adult children to be unsatisfactory, and (h) experience impaired social support. The findings on the relationships between depression and age, living arrangement, SES, and marital status, however, are less conclusive and require further investigation.

Implications for Research

Based on this review, a number of key issues pertaining to the current status of depression research of OAIs are identified. First, the majority of the studies reviewed lacked theoretical rationale, which renders most of the current studies exploratory and, in some cases, strictly descriptive in nature. We believe that rationale- and theoretically-based depression research of OAIs should define the future of empirical studies in this area (Iwamasa & Sorocco, 2002; Lai, 2000, 2001). As reiterated throughout this article, we submit that the Psychosocial Theory of Late-Life Depression is one fitting and promising conceptual model that can serve to address the theoretical void in the existing OAI depression literature. The model not only encapsulates the assumptions and findings embedded in the existing studies, but also offers potential directions for future research and practice in this area. As Blazer asserted, such a psychosocial model is "heuristically valuable" (Blazer & Hybels, 2005, p. 1249) and will "enable the professional to organize information regarding the onset of the event, the diagnostic workup, and intervention" (Blazer, 1998, p. 11).

Second, the Psychosocial Model of Depression helped identify what levels of variables require further research. As this article revealed, the correlates associated with Level I (demographics), IV (social integration), and V (risk and protective factors) of the model received more empirical attention in the existing studies than variables at Level II (early life events/achievements), III (later life events/achievements), and VI (provoking agents and coping efforts). Based on this review, only one variable was linked to each of Level II (i.e., education) and VI (i.e., stress and coping) of the model. Future depression studies should explore more broadly other potential early life predictors of depression, such as past trauma, family history, or developmental history of older Asians.

In terms of Level VI provoking agents of depression, none of the studies reviewed have examined the role of racial discrimination as a precipitating factor for depression in older Asians. As noted previously, the history of Asian immigration experiences in the United States and Canada has been marked with discrimination, prejudice, and stereotype. Cumulative evidence has clearly linked discrimination to depressive symptoms in Asian immigrants (Noh & Kaspar, 2003), Asian refugees (Noh, Beiser, Kaspar, Hou, Rummens, 1999), and Asian international students (Kuo & Roysircar, 2006). In a recent national study of Asian American adults, Gee et al. (2007) found that discrimination significantly increased the participants' chances of suffering from depression, anxiety, or other mental disorders in the past 12 months. The

authors found experiences of discrimination were a stronger predictor of depressive symptoms for Asians than acculturative stress. These findings compel future depression studies to explore the extent to which racial discrimination might be a precursor of depression among OAIs.

In addition, although significant life events (e.g., migration, acculturative stress, discrimination) have been identified as central precipitating factors for late-life depression, coping is regarded as a crucial mediating variable between stressors and depressive outcome (Blazer, 2002; George, 2004; Mui & Kang, 2006). However, currently the research on stress-coping and depression among OAIs is very scarce (Kuo & Guan, 2006; Wong & Ujimoto, 1998). Also, when stress and coping of older Asians were assessed and operationalized in the studies, it was done in an inconsistent manner. Likewise, systematic examinations of the link between cultural change and acculturation and OAIs' depression are also very limited (Iwamasa & Sorocco, 2002; Kuo, in press). We strongly recommend that future studies incorporate the established theories and research on stress-coping (e.g., Lazarus & Folkman, 1984) and on acculturation (Berry, 1997) into depression research.

Third, the existing studies were dominated by nonprobability participant recruitment methods, often on the basis of small convenience samples. The external validity (population representativeness and generaliziblity) and the reliability (stability) of the findings are hence restricted. One notable exception was Lai's study (Lai, 2004a, 2004b, 2005), which incorporated a randomized procedure in participant recruitment based on Chinese surnames listed in telephone books. This approach afforded the study a large sample size ($N = 1,537$) of Chinese Canadian older adults obtained across multiple cities in Canada. In Mui and Kang's (2006) study, a probability sampling approach based on the 1990 U.S. census data was used to draw participants from the census blocks across five boroughs of New York. These studies offer successful models of probability sampling of OAIs which can be emulated by future studies.

Fourth, our review revealed wide variation in the manner depression-related independent variables (e.g., SES, health status) were defined and measured across the studies. Many studies did not assess complex variables, such as acculturation and social support, with validated, multidimensional measures. Even when validated scales were used, the types and the versions of the scales adopted often varied from study to study. For instance, the GDS-LF, GDS-SF, CES-D, DIS-III, and KDIS, were all used to measure depression in the studies reviewed. In some cases, different cut-off scores for the same depression measure (e.g., the GDS) were used between studies to categorize the severity of

depressive symptoms. Consequently, the comparability of the findings across studies was compromised and hence the results require judicious interpretation. Therefore, it is necessary to streamline future studies in this area by adopting more standardized and empirically validated measures. We echo the recommendations put forth by others (Mui, 1998; Shibusawa & Mui, 2001) for future research to: (a) adopt multidimensional and psychometrically robust measures and (b) converge on the use of consistent and agreed-upon standardized measures to assess depression and depression-related constructs.

Fifth, we believe the field would greatly benefit from consistent application of sophisticated multivariate research designs and corresponding statistical procedures. Kagawa-Singer, Hikoyeda, and Tanjasiri (1997) observed a decade ago that older Asian American mental health research was challenged with having many conflicting and misleading results. The present review revealed a similar concern within this body of literature a decade later (e.g., conflicting results in terms of gender or age effects on depression). Although these discrepancies might be attributed to sample-specific characteristics, such as sample sizes, regional variabilities, Asian subgroup differences, they might also reflect divergent approaches used to analyze data across studies. The existing studies relied heavily on *t* tests, ANOVAs, correlation analyses, and multiple regression analyses (logistic and hierarchical). In this regard, the field would greatly profit from research with more rigorous and replicable data and with more standardized use of multivariate statistical methods.

Finally, as early as a decade ago, some ethnic gerontological researchers had alerted the field to study older Asians who represent more recent subgroups of Asian immigrants to the United States (Markides & Miranda, 1997). According to U.S. Census Bureau (2000), Filipino, South, and Southeast Asians made up a significant proportion of Asians in the United States. Filipinos, South Asians (i.e., Indians, Bangladeshis, Pakistanis, Sir Lankan), and Southeast Asian (i.e., Vietnamese, Hmong, Cambodians, Laotians, Indo Chinese) represented 19%, 19%, and 16%, respectively, of all Asian Americans in 2000. In Canada, Filipinos, South Asians, and Southeast Asians represented 12%, 35%, and 8%, respectively of all Asian Canadians in 2001 (Statistics Canada, 2001b). Nevertheless, based on our inclusion criteria, only one published study included samples of older Filipino, South and Southeast Asian Americans (i.e., Mui & Kang, 2006). Relatedly, the existing depression studies on OAIs were conducted primarily on foreign-born (i.e., Asian-born) samples. As such, it is not clear to what extent current studies and their findings can be generalized to U.S.-born or Canadian-born older Asians. As the number of native-born OAIs (i.e., second- and third- generation immigrants) increases in the next few decades, empirical attention must be directed towards this group also.

Therefore, the present review reiterates the call issued by previous researchers for the field to extend its current scope to investigate the mental health status of older adults in these understudied groups.

Extending depression research to study depression among Filipinos, South Asians, Southeast Asians, or any other Asian groups of older adults requires creative and culturally-responsive strategies on the part of researchers (Iwamasa & Soroccos, 2002). The difficulties associated with conducting mental health research with older ethnic minorities, including Asians, are well-documented in the literature (e.g., Areán & Gallagher-Thompson, 1996; Iwamasa & Soroccos, 2002). Here, we offer two recommendations as potential strategies to help promote and facilitate future depression research with understudied OAI populations.

First, Areán and her colleagues proposed and tested a *consumer-centered* approach to research recruitment (Areán, Alvidrez, Nery, Estes & Linkins, 2003). In this model, the researchers work closely with the key gatekeepers, the opinion leaders, and the older adults of the target minority group to help devise the recruitment methods (e.g., face-to-face interview, target mailing) and to offer on-going advices throughout the research process. The research recruitment team is composed of an ethnically-matched recruiter, an experienced interviewer, and a trained community member of the target community. Testing this participant (consumer)-centered method against the traditional, researcher-centered approach, Areán et al. (2003) found the former method to reach a greater number and to produce a higher retention rate of the participants. This model offers a tangible working model for researchers to cultivate a trusting relationship with the Filipino, South Asian, and Southeast Asian communities and their respective representatives prior to the actual study.

Second, Areán and Gallagher-Thompson (1996) previously put forward the following strategies as a means to promote mental health research among older ethnic minorities: (a) to help the target community overcome fear and distrust of research, (b) to assist the community in overcoming transportation difficulties and to offer outreach, (c) to educate the community about the disorder under study and the benefits of participating in research, (d) to be informed about the cultural barriers faced by the target older adults, (e) to provide feedback to the community,(f) to deal with participants' perceived and actual poor health condition, and (g) to provide incentives for participating in research. On the basis of these suggestions, future depression research of the under-investigated older Asian groups must be actively supported and encouraged, and successful research with these groups must be established in a close partnership with the target,

grassroots community. Incorporating these strategies, coupled with the application of linguistically appropriate and culturally-sensitive instruments (Kagawa-Singer et al., 1997; Kuo & Guan, 2006), would likely work toward improving both the quantity and the quality of future depression research among OAIs.

Implications for Practice

According to the Psychosocial Model, the pathways to late-life depression are dynamic and multifaceted (Blazer, 2002), and thus warrant multilevel and multidimensional interventions (Billings & Moos, 1982). First, the high prevalence of depression among OAIs implies that medical and social service professionals who work closely with this group should regularly screen and assess these older adults for depressive symptoms (Stokes et al., 2001). This is particularly important given the observation that psychological problems, including depression and anxiety, are often masked in somatic forms among Asians (Pang, 1998). Second, during physical or mental health screening, clinicians should pay special attention to OAIs' characteristics and statuses on key psychosocial predisposing or precipitating variables that have been found to be predictive of depression. Areán and Reynolds (2005) advocated the the development of brief and reliable depression risk assessment tools focusing on vulnerable psychosocial variables in older adults. In addition, we emphasize the importance of developing culturally and linguistically validated psychosocial screening measures for depression for OAIs.

Third, community education and outreach programs about depression should be proactively and vigorously implemented by agencies and services working with OAIs. These preventive strategies can benefit from our increasing and more accurate empirical knowledge about OAIs and depression, as was revealed through the current review. These programs can serve to dispel OAIs' and their families' myths and reduce the stigma associated with depression. Further to this point, psychoeducational programs which are delivered in the native language of OAIs by bilingual professionals would be highly desirable and culturally appropriate (Iwamasa & Hilliard, 1999).

Finally, many of the risk factors for depression found in this review are related to OAIs' sociocultural characteristics as immigrants (e.g., English ability, acculturation, social and family isolation, perceived service barriers). Hence, holistic depression interventions with OAIs would necessitate the mobilization of local ethnic communities (e.g., linking older adults to other coethnic older adults) and the involvement of diverse social services (e.g., case management, immigrant settlement programs; Kuo, 2004). These resources address

and attend to the financial, housing, legal, social, and language needs of older immigrants, in addition to their receiving medical and psychological interventions in dealing with depression (Areán & Reynolds, 2005). On a related note, OAIs' cultural orientation and acculturation levels in the United States or Canada provide important clues regarding the quality of their adaptation, resourcefulness, and well-being (Iwamasa & Sorocco, 2002 Kuo, in press). Thus it is crucial for clinicians or service providers to promptly gauge OAIs' acculturation levels early in their working relationship, and to subsequently facilitate their referrals to appropriate services (Kuo & Guan, 2006).

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