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CONTINUING EDUCATION

Depression in Registered Nurses

A State of the Science

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Abstract: Registered nurses suffer from depression at almost twice the rate of individuals in other professions. Major depression affects both employees and organizations. Depression is linked to increases in work absenteeism, short-term disability, and decreased productivity and presenteeism. Depression experienced by registered nurses may not be fully preventable, but realizing its presence and prevalence in the workplace is of vital importance. It is essential that we have a healthy, vibrant, and present registered nurse workforce to ensure that quality patient outcomes are achieved. This review of 36 articles assesses the current state of the science related to depression in registered nurses so that occupational health nurses can create pathways and work environments for better mental health for registered nurses.

Keywords: workforce, mental health, occupational hazards, productivity, research, organizational culture/climate

More than 4 million registered nurses are employed in the United States, with females representing 90% of the nursing workforce (Budden, Zhong, Moulton, & Cimiotti, 2013). Nursing is a stressful, demanding, and taxing profession; job stress is linked to higher rates of depression (Centers for Disease Control and Prevention [CDC], National Institute for Occupational Safety and Health, 2013). Nurses experience depressive symptoms at a rate twice as high as individuals in other professions (S. Letvak, Ruhm, & McCoy, 2012). In this article, the authors assess the current state of the science related to depression in registered nurses so that occupational health nurses can identify personal and organizational factors that influence depressive symptoms and create pathways for better mental health for registered nurses. The correlates and predictors of depression in registered nurses discovered in the literature are summarized. Last, the authors identify gaps in the literature that may guide further research.

Background

Depression is estimated to affect more than 350 million individuals (World Health Organization [WHO], 2012). Globally, an estimated one in 20 individuals reports an episode of depression in the previous year (WHO, 2012). In the United States, more than 16 million adults have had at least one major depressive episode in the last year (National Alliance for Mental Illness [NAMI], 2015; National Institute of Mental Health [NIMH], 2014). The CDC estimate that one in 10 adults in the United States will at some point in their lifetimes report suffering from depression (CDC, 2012).

Major depressive disorder, frequently referred to as depression, is the most common mental disorder in the United States (NAMI, 2008). Depression and its associated symptoms present in each individual differently. Generally, depression is characterized by persistent sad, anxious, or empty feelings; feelings of hopelessness or pessimism; feelings of guilt, worthlessness, or helplessness; irritability; restlessness; and loss of interest in activities or hobbies once pleasurable (NAMI, 2015; NIMH, 2014). Additional symptoms include fatigue and loss of energy; difficulty in concentrating, remembering details, and making decisions; insomnia, early-morning wakefulness, or excessive sleeping; overeating, or appetite loss; thoughts of suicide and suicide attempts; aches or pains; headaches; cramps; or digestive problems that do not ease even with treatment (NAMI, 2015; NIMH, 2014). These problems can become chronic or recurrent and lead to substantial functional impairments.

Major depression affects employee performance as well as organizational productivity (American Psychiatric Foundation [APF], Partnership for Workplace Mental Health, 2015; Langlieb & DePaulo, 2008; S. A. Letvak, Ruhm, & Gupta, 2012). Depression is linked to increases in work absenteeism, short-term disability, and decreased productivity and presenteeism (CDC, 2012). Depressed employees may have impaired judgment, and lapses of judgment in the workplace may produce serious occupational injuries (Langlieb & DePaulo, 2008). Depression is estimated to cause 200 million lost workdays each year at a cost to employers of US$17 billion to

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US$44 billion (APF, Partnership for Workplace Mental Health, 2015). Depression accounts for as much health care and disability costs as chronic diseases such as hypertension, diabetes, musculoskeletal disorders, and heart disease (APF, Partnership for Workplace Mental Health, 2015). Nurse-reported productivity loss due to depression is estimated to be US$14,339 per nurse and US$876.9 million per state. These costs equate to a national productivity loss of US$22.7 billion per year (S. A. Letvak et al., 2012).

However, it is presenteeism that may have the most impact on worker performance (S. A. Letvak et al., 2012; J. Wang, Schmitz, Smailes, Sareen, & Patten, 2010). Presenteeism is the productivity loss that occurs when workers are present at work, but are not functioning at peak performance because of health problems (S. Letvak, 2013). Depressed workers continue to work, but underperform due to their symptoms (Putnam & McKibbin, 2004; J. Wang et al., 2010). Registered nurses who report presenteeism are more likely to report more medication errors, patient falls, and overall poorer quality of care received by patients. (S. A. Letvak et al., 2012).

Method

A review of the literature was conducted using the electronic databases CINAHL and PubMed. In addition, the search engine Google Scholar was used to detect other relevant literature sources. Please refer to Figure 1 for the diagram of the review process. The original search was limited to 10 years, articles written in English, and outcome variables related to depression. To refine this topic for a review of the literature, a Population, Intervention, Comparison, and Outcome (PICO) question was generated. The PICO question for this research included the terms *registered nurses, predictors*, and *depression*. In CINAHL, the terms *depression* and *registered nurses* were explored using the "major exact subject heading" field generating 15 articles, of which eight were further examined.

To capture additional articles, a search of the terms depress* and staff nurs* using the "major exact subject heading" field was completed, yielding another nine articles, five of which were relevant and marked for additional examination. Because few relevant articles were discovered, the researchers eliminated the 10-year time anchor to capture sentinel research articles. A subsequent search of PubMed, using the search terms "occupational depression nurses," yielded 169 articles; 18 were flagged for further review.

At this step, the majority of articles were rejected because the articles did not focus on depression in registered nurses, the focus of this review. The abstracts of remaining articles were reviewed to ascertain that the remaining research studies matched the purpose of this review. At this point, the search engine Google Scholar with keywords "depression in registered nurses" was explored with no time limitations. This search uncovered a sentinel article from 1990 that had not been previously identified. Next, the authors conducted a manual citation search using the identified articles; this process yielded five additional research articles.

After adjusting the search criteria to capture the most significant research articles, 36 articles were retained for this review of the literature (See Figure 1). Because of the limited number of articles retrieved from the chosen databases, the researchers did not evaluate the studies for methodological and theoretical rigor. The remaining 18 studies were then reviewed, analyzed, and organized around the outcome variable of depression. Results of the review were categorized into themes found in the literature including stages of depression research, geographical features, observations of depression in registered nurses, depression correlates, depressive symptomatology, and personal and workplace predictors of depression. Table 1 presents a summary of 36 studies reported between 1983 and 2015 that met the inclusion criteria. The information identified in the table includes the author(s), year, location, purpose/research questions, design, sample size, depression measurements, other measurements, and key findings.

Findings

Of the 36 studies identified for this review, 10 used a descriptive design, 11 used a correlational design, and 15 used a mixed descriptive/correlational design. Sample sizes ranged from 29 to 3,474 nurses. Of the 36 studies, seven were conducted in the United States with the remaining 29 conducted internationally. The time span for the studies ranged from 1983 to 2014. Table 1 provides a comprehensive examination of each of the 36 studies reviewed.

Stages of Depression Research

The investigation of depression in registered nurses spans several decades. The landmark article on the subject was written by Italian researchers in 1983 and examined depression and anxiety in psychiatric nurses (De Leo, Magni, Vallerini, & Dal Palu, 1983). Between 1985 and 1993, researchers published four articles investigating depression in registered nurses. These authors mainly focused on predictors and correlates of depression in registered nurses. Between 1998 and 2003, researchers began to focus on personal factors associated with depression such as secondary trauma, demographic characteristics, and personal protective factors. During this time frame, investigators published seven articles that contributed to understanding how depression affects registered nurses. Since 2004, a resurgence of articles examined the prevalence and predictors of depression; the emphasis in these articles was on personal and occupational stress experienced by registered nurses. Between 2004 and 2015, researchers published 25 articles exploring the relationship of these phenomena; research in the last decade accounted for close to 70% of current knowledge on the topic. Table 1 provides a chronological summation of research studies about depression in registered nurses.

Geographical Scope of Depression Research

Examining and predicting depression in registered nurses are domestic and international imperatives. Research on the topic in

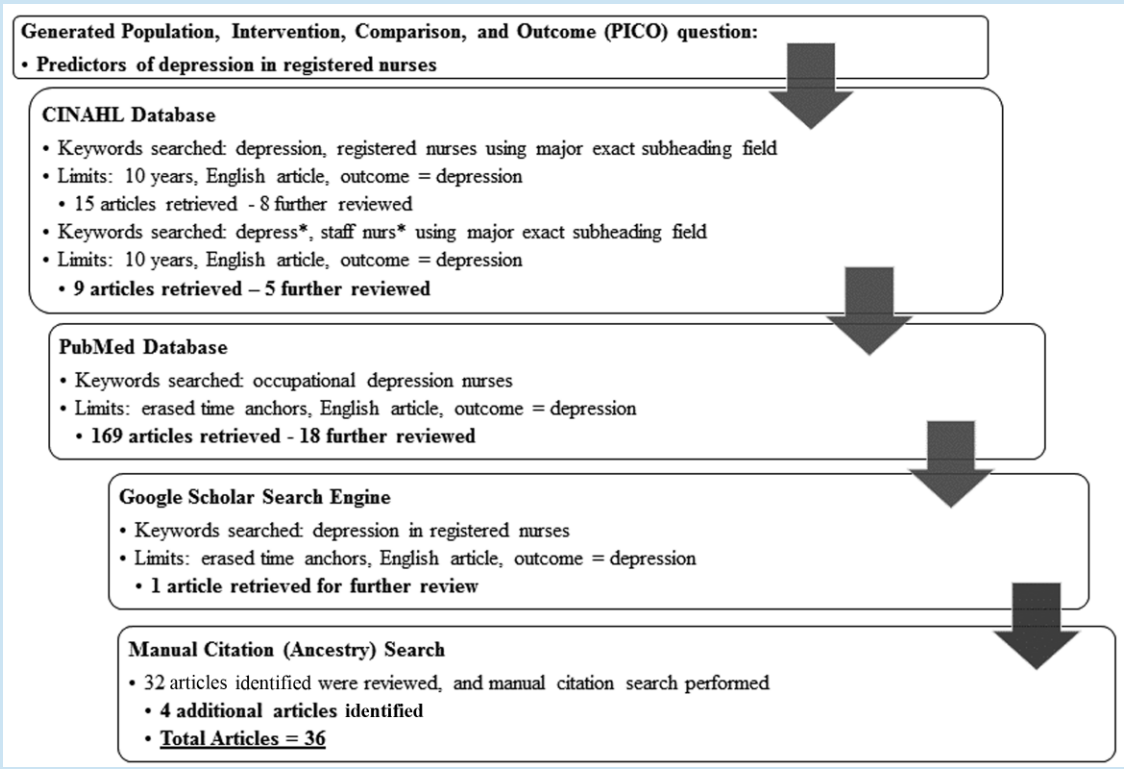


Figure 1. Diagram of review process.

the United States has been published in New York, North Carolina, New Jersey, Tennessee, California, and most recently in Kentucky (Glass, McKnight, & Valdimarsdottir, 1993; S. Letvak et al., 2012; Ruggiero, 2003; Skipper, Jung, & Coffey, 1990; van Servellen, Soccorso, Palermo, & Faude, 1985; Welsh, 2009). However, the majority of research investigating depression in registered nurses has been conducted outside the United States (i.e., Australia, Canada, China, England, Japan, Norway, Taiwan, and the Caribbean countries of St. Vincent and Trinidad and Tobago). Table 1 provides a comprehensive list of international depression research and corresponding countries.

Observations of Depression in Registered Nurses

The research revealed a variety of factors that predicted depression in registered nurses. The highest rates of depression were among young, female registered nurses (Arafa, Nazel, Ibrahim, & Attia, 2003; Ardekani, Kakooei, Ayattollahi, Choobineh, & Seraji, 2008; Ohler, Kerr, & Forbes, 2010; van Servellen et al., 1985; Yoon & Kim, 2013; Yoshizawa et al., 2016). In addition, depression was cited as more frequent in single and divorced nurses versus married nurses (Ardekani et al., 2008; Chang, Wang, Li, & Liu, 2011; S. M. Wang et al., 2015; Yoon & Kim, 2013). Nurses working in intensive care units and psychiatric units reported higher levels of depression (Arafa et al., 2003; Bjorvatn et al., 2012; Chiang & Chang, 2012; De Leo et al., 1983; Gong et al., 2014; Kawano, 2008; S. M. Wang et al., 2015) than nurses working on other types of units. Registered nurses reporting higher levels of workplace violence or traumatic events also reported higher levels of depression (Gong et al., 2014; Lam, Ross, Cass, Quine, & Lazarus, 1999; Yoshizawa et al., 2016). In addition, nurses with positive evaluations and expectations of themselves and others reported lower depression levels (Chang et al., 2011).

Depression Correlates

Depression was positively correlated with female gender, marital status, and length of employment (Baba, Galperin, & Lituchy, 1999; Chang et al., 2011; Gao et al., 2012; S. M. Wang et al., 2015). Also, as age increased, the risk for depression decreased (Bjorvatn et al., 2012; Skinner & Scott, 1993). Depression in registered nurses was also correlated with other mood disorders like anxiety, and somatic symptoms such as fatigue, pain, and trouble sleeping (Morrissy, Boman, & Mergler, 2013; Welsh, 2009). Depression showed significant positive associations with role overload, role conflict, stress, burnout, absenteeism, intention to leave, and turnover (Baba et al., 1999; Chang et al., 2011; Glass et al., 1993; Hegney et al., 2014; Kawano, 2008; Lin, Probst, & Hsu, 2010; Wu, Ge, Sun, Wang, & Wang, 2011; Yoshizawa et al., 2016). Overcommitment and job

(text continues on p.506)

Table 1. Comprehensive Table of Literature Review Articles

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Arafa, Nazel, Ibrahim, and Attia	2003	Egypt	Assess psychological well-being of nurses in different job settings and identify sociodemographic, psychological, and workplace predictors.	Descriptive	412	GHQ-30	JDI 72-items measuring job satisfaction in relation to five factors: work, supervision, relationship with colleagues, pay, and promotion. PSR 15-item instrument examines the environmental variable of social support.	Highest rates of psychological symptoms found in hospital setting, ICUs followed my IM by Surgery, alternating shifts, less experience, and younger age. Respondents also complained of physical complaints in addition to psychological. Negative total work satisfaction, fewer years of experience, negative family support, and negative friend support were the most important predictors of psychological ill health in nurses in descending rank order.
Ardekani, Kakooei, Ayattollahi, Choobineh, and Seraji	2008	Iran	Determine prevalence of mental health disorders in registered nurses and identify associations among sociodemographic variables and mental disorders.	Descriptive	150	GHQ-28, BDI-R	None.	More than 45% of the registered nurses suffered from a mental disorder. Mental disorders were more prevalent among female nurses compared with male nurses. Mental disorders were significantly higher in married individuals versus single individuals. Social dysfunctions were more common among married nurses compared with singles, but depression was more frequent in single nurses. Somatic and anxiety symptoms were significantly higher in nurses working in government hospitals than private hospitals.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Baba, Galperin, and Lituchy	1999	St. Vincent, Trinidad and Tobago	Address certain aspects of occupational and mental health of nurses; in particular, to understand the relationship between work and depression, identify work-related antecedents and consequences of depression, and investigate the portability of Western models to the developing world.	Correlation	119	CES-D	Absenteeism, Turnover Intention, Role Overload, Role Conflict, Decision Latitude, Social Support, Stress, Burnout.	Depression showed significant positive correlations with gender, role overload, role conflict, stress, burnout, absenteeism, and turnover. Depression showed significant negative correlations with social support.
Bjorvatn et al.	2012	Norway	Investigate sleep, sleepiness, fatigue, subjective health complaints, anxiety and depression in a sample of ICU nurses. Also to investigate the associations between age, experience, shift work, marital status, and having children with the outcome measurements.	Correlation	267	HADS	Sleep was assessed using the PSQI 19 items. Other aspects of sleep were assessed using the KSQ. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale. Fatigue was assessed with the 11-item Fatigue Questionnaire. Health complaints were measured by the SHC, and anxiety and depression were measured using the 14-item HADS.	Nurses working in intensive care units reported poorer sleep, more sleepiness, more fatigue, more anxiety, and more depression compared with Norwegian norm groups. Age was positively related to these complaints.

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Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Chang, Wang, Li, and Liu	2011	Taiwan	Provide an examination of the relationships among self-efficacy, optimism, and depression.	Correlational	314	CES-D	GSES—10 items on 4-point Likert-type scale. LOT-R—six-item scale used to assess individualized differences in generalized optimism.	More than 52% of nurses reported mild to moderate depressive symptoms. Self-efficacy and optimism were significant buffers against depression and were negatively correlated with depression. Nurses with positive evaluations and expectations toward themselves and others reported lower depression levels. Also a correlation between depressive symptoms and marital status was found; divorcees have a higher rate of depressive symptoms.
Chiang and Chang	2012	Taiwan	Explore the relationships among demographic characteristics, hospital units, stress, depression, and intent to leave. Investigate the differences among nurses in various departments in regard to levels of depression, stress, and intention to leave. Examine whether demographic characteristics have significant influence on depression, stress, and intention to leave among nurses employed on various units.	Descriptive correlation	314	CES-D	Stress was measured via the PSS-10. Intention to leave was assessed using the Intention to Leave Scale - 5 items.	A nurse's perception of stress was positively correlated with marital status and education and was negatively correlated with work tenure. Depression and intention to leave were positively correlated with marital status but negatively related to work tenure and age. The intention to leave had significant positive correlations with stress and depression. In terms of depression, internal medical ward nurses had higher scores than emergency room nurses and nurse practitioners. External medical ward nurses experienced more severe depression than ER nurses. Tenure had a negative influence on stress, depression, and intention to leave.

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Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Chung et al.	2012	Taiwan	Explore the association between severity of depression symptoms and positive ideation in hospital nurses to determine whether learned resourcefulness was a mediator and/or moderator in that relationship.	Correlation	658	BDI-II	Positive Ideation portion of the PANSI-PI and SCS to assess learned resourcefulness.	Depressive symptoms were negatively related to learned resourcefulness and positive ideation. Higher levels of depressive symptoms were related to lower levels of learned resourcefulness and positive ideation. Also, higher levels of learned resourcefulness correlated with higher levels of positive ideation.
De Leo, Magni, Vallerini, and Dal Palu	1983	Italy	Assess symptoms of anxiety and depression in two groups of nurses	Descriptive	125	Zung Self-Rating Depression Scale	Taylor Manifest Anxiety Scale	Significant differences between the two groups of nurses were found with psychiatric nurses having higher depression and to a lesser extent higher anxiety scores than general hospital nurses.
Eldevik, Flo, Moen, Pallesen, and Bjorvatn	2013	Norway	Assess whether insomnia, excessive sleepiness, excessive fatigue, anxiety, depression, and shift work disorder were associated with quick returns among shift workers.	Correlation	1,900	HADS	Shift work disorder was assessed using three questions adhering to the international classification for sleep disorders. Sleepiness assessed using the eight-item Epworth Sleepiness Scale. Fatigue was measured using the Chadler Fatigue Scale. Anxiety and depression were measured using the HADS consisting of 14 items (7 depression and 7 anxiety).	Significant positive associations found between quick returns, excessive sleepiness, and shift work disorder. Anxiety and depression were not related to working quick returns.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Flo et al.	2012	Norway	Investigate the prevalence of symptoms of shift work disorder in nurses and its association to individual, health, and work variables	Descriptive correlation	1,968	HADS	BIS. Shift work disorder was assessed using three questions adhering to the international classification for sleep disorders. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale. Fatigue questionnaire. Anxiety and depression were measured using the HADS consisting of 14 items (7 depression and 7 anxiety). 15-item Dispositional Resilience Hardiness Scale–Revised. Diurnal Scale to measure morningness, Revised Circadian Type Inventory to assess circadian phase, Short form of AUDIT-C to assess alcohol consumption, caffeine consumption questionnaire, use of sleep medications, and bright lights questionnaires.	Logistic regression showed relationship between shift work disorder and depressive symptoms.

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Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Flo, Pallesen, Moen, Waage, and Bjorvatn	2014	Norway	Investigate whether the number of work shifts separated by less than 11 hours (quick returns) could predict shift work disorder, fatigue, anxiety, and depression at 1-year follow-up.	Correlation	1,224	HADS	Shift work disorder was assessed using three questions adhering to the international classification for sleep disorders. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale. Fatigue was measured using the Chadler Fatigue Scale. Anxiety and depression were measured using the HADS consisting of 14 items (7 depression and 7 anxiety).	Depression was not related to quick returns or the number of night shifts. However, a significant positive association was found between quick returns, insomnia, excessive sleepiness, excessive fatigue, and shift work disorder.
Gao et al.	2012	China	Explore the distribution of depressive symptoms in Chinese nurses and explore the factors that may contribute to the depressive symptoms	Descriptive correlation	1,592	CES-D	JCQ assesses work stressors and related work environment. It is a 22 item questionnaire with 3 scales. ERI measures stress at work.	Nearly 62% of nurses had depressive symptoms. Age, length of employment, education, chronic disease, and life events were significantly related to depressive symptoms. Marital status was not significantly related to depressive symptoms. Regular meals, physical exercise, job rank, monthly salary, nurse–patient relationship, job satisfaction, and turnover intentions were significantly related to depressive symptoms. Nurses with higher education levels were at increased risk for developing depressive symptoms. Higher job satisfaction was the best protective factor against depressive symptoms.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Glass, McKnight, and Valdimarsdottir	1993	The United States (New York)	Assess the relationship between depression and burnout separately for each of the three subscales of the MBI.	Descriptive correlation	162	BDI	Burnout was assessed using MBI. Perceived job control was measured via questionnaire developed by McDermott. Actual job control was assessed by objective raters using an actual job control questionnaire.	Approximately 29% of the sample was classified as depressed. Depression accounts for a substantial portion of the variance in burnout as measured by emotional exhaustion. Burnout may be a precursor to job-related depression.
Gong et al.	2014	China	Assess the prevalence of depressive symptoms among Chinese nurses. To identify the relationship between work-related risk factors and depressive problems in Chinese nurses.	Descriptive correlation	3,474	Zung Self-Rating Depression Scale	None	An estimated 38% of nurses had depressive symptoms. More than 10% of the nurses often experienced workplace violence, and 64.22% experienced it occasionally. Depressive symptoms were associated with frequent workplace violence, long work hours (more than 45 per week), and specific departments.
Hegney et al.	2014	Australia	Are risk profiles delineated by different levels of compassion satisfaction, secondary trauma syndrome, and burnout associated with specific patterns of depression, anxiety, and stress levels? Are higher levels of compassion fatigue associated with higher levels of anxiety, depression, and lower compassion satisfaction? Is higher compassion satisfaction associated with lower levels of anxiety, depression, and stress?	Correlation	132	DASS	Professional Quality of Life Scale, Version 5, is a 30-question Likert-type questionnaire measuring compassion satisfaction and compassion fatigue.	Significant positive correlations for burnout, with stress and depression symptoms, and a medium correlation with anxiety. Compassion satisfaction had a significant negative correlation with depression, although the magnitude of this effect was small.

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Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Iacovides, Fountoulakis, Moysidou, and Ierodiakonou	1999	Greece	Investigate the relationship between burnout and depression.	Descriptive	368	Zung Self-Rating Depression Scale	MBI to assess burnout, Eyseneck Personality Questionnaire to assess personality traits.	The majority of the participants that suffered from burnout syndrome did not suffer from depressive symptomatology. Younger participants with burnout have a larger percentage of mild depression cases in this sample.
Kawano	2008	Central Japan	Examine degrees of job-related stress factors as well as mental and physical symptoms and associations of department and job-related stress factors with those symptoms.	Correlation	1,551	Brief Job Stress Questionnaire	n/a	Less job control, lower job fitness, and poorer interpersonal relationships and supervisor support were most obviously associated with depression. The depression scores of outpatient nurses were significantly lower than nurses in any other department. Working in the operating room was significantly associated with higher scores of depression.
Lam, Ross, Cass, Quine, and Lazarus	1999	Australia	Document the extent of trauma exposure among nursing staff, and investigate the effects of trauma exposure on the psychological health of nursing staff.	Descriptive	314	GHQ-28, BDI-R	Seven-item HTEC. Modified Stressful Life Event Scale	Nearly 82% of the sample indicated exposure to one of seven traumatic events. The results of the GHQ indicated that 39% of the nurses in the study could be identified as psychologically distressed. The results of the BDI-R suggested that nearly 20% of those surveyed were mildly depressed, 8% experienced moderate depression, and 1.6% were severely depressed. The risk for depression increased as the length of service at the current hospital increased.

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Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Letvak, Ruhm, and McCoy	2012	The United States (North Carolina)	Examine specific variables that may contribute to depression in hospital-employed nurses and the effect on patient care quality and safety	Descriptive		PHQ-9	None	41% TDS = 0-4, 25% TDS = 5-9, 12% TDS = 10-14, 4% TDS = 15-19, 2% TDS = 20-27. Linear regression demonstrated that BMI, job satisfaction, number of health problems, mental well-being, and health-related job productivity were significantly related to TDS.
Lin, Probst, and Hsu	2010	Taiwan	Examine correlation between job stress, coping behaviors, and social support with depression	Correlation	154	BDI-II	Taiwanese Nurse Stress Checklist for job stress, Jalowiec Coping Scale to examine coping behaviors, and Interpersonal Support Evaluation List to study social support.	Almost 28% of nurses studied experienced severe, moderate, or mild depression. Job stress significantly correlated with depression. Social support not significantly correlated with depression.
Mark and Smith	2012	England	Is positive coping associated with depression and anxiety in nurses? Is job demand associated with anxiety and depression in nurses? Are extrinsic effort and overcommitment associated with depression and anxiety in nurses? Does coping moderate the effect of negative job characteristics on mental health outcomes? Does coping, effort, rewards, demands, control, and support explain the variance in anxiety and depression scores in registered nurses?	Correlation	870	HADS	ERI—21 items. JCQ—27 items. WCCL—42 item.	Descriptive statistics showed that 27.3% of the sample were above the self-reported levels of anxiety or depression. The absence of negative coping behaviors is more strongly associated with positive mental health outcomes than the presence of positive coping behaviors. Job demands were positively associated with depression. Overcommitment was the most important predictor of depression. ERI accounted for 43.5% of the variance in depression scores.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Morrissy, Boman, and Mergler	2013	Australia	Determine what individual factors influence job-related affective well-being in graduate nurses?	Correlation	70	CES-D	Anxiety Subscale of HADS was used to measure generalized anxiety—a seven-item self-report scale measuring the presence and severity of psychological anxiety symptoms. LOT-R—a 10-item self-report tool to measure optimism. JAWS—30-item self-report scale measuring the range of emotional reactions toward work.	Higher scores on the depression scale were correlated with associated low levels of job-related affective well-being. Higher scores on the anxiety measure were associated with lower levels of job-related affective well-being. Nurses with higher optimism scores reported fewer depression and anxiety symptoms. Individuals reporting more depression also reported more symptoms of anxiety.
Ohler, Kerr, and Forbes	2010	Canada	Secondary analysis of National Survey of Work and Health of Nurses for examining associations between depression and work-related variables.	Descriptive correlation	9,322	CIDI	Work Stress was assessed using a modified version of the Job Content Questionnaire—12 question survey. Role overload was measured using five statements based on the Occupational Stress Inventory. Respect was measured using three statements on effort–reward imbalance scale.	More than 89% of nurses reporting depression had one chronic disease. No significant association between depression and full-time/part-time status, educational level, or age. Those nurses experiencing a higher degree of job strain had 80% odds of suffering from depression, and those experiencing role overload had slightly increased odds of having depression in the previous year. Nurse's perceptions of care given, employer support, social support, and staffing were not statistically significant in relation to the odds of being depressed.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Oyane, Pallesen, Moen, Akerstedt, and Bjorvatn	2013	Norway	To compare the levels of anxiety, depression, insomnia, sleepiness, and fatigue among nurses, and to investigate the cumulative effect of night shift work.	Descriptive correlation	2,035	HADS	Bergen Insomnia Scale was used to measure insomnia symptoms. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale, Fatigue was assessed with the 11-item Fatigue Questionnaire. Health complaints were measured by the SHC.	Nurses with current night work were more often categorized with insomnia and chronic fatigue. Anxiety and depression were not associated with night work.
Ruggiero	2003	The United States (New Jersey)	Do critical care nurses who work night shifts report more chronic fatigue, poorer global sleep quality, and more anxiety and depression than critical care nurses who do not work night shifts?	Descriptive	142	BDI-II	Chronic shift-worker fatigue was measured with the SSICFS. Global sleep quality was measured via the PSQI, and anxiety was measured via the BAI.	Permanent night shift nurses had significantly more depression and poorer global sleep quality than did permanent day shift nurses. Chronic fatigue was found to have significant relationships with global sleep quality, depression, and anxiety. Depression was the most important variable in the explanation of chronic fatigue.
Skinner and Scott	1993	The United States (Tennessee)	What is the prevalence of perceived depression among hospital-employed female staff nurses? Is there a difference in the prevalence of depression in hospital-employed female nurses and non-females? Are self-esteem, assertiveness, and anxiety related to depression in female registered nurses?	Descriptive correlation	29	BDI	CSEI—25 items. STAI—20 items, ASES—48 items.	Twenty-seven percent of the registered nurses were experiencing depression. A negative correlation existed between depression and age—the older a nurse was the less likely to be depressed. There was negative correlation between self-expression (assertiveness) and depression—with higher depression scores associated with lower self-expression scores. No significant differences were found between male and female registered nurses.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Skipper, Jung, and Coffey	1990	The United States (North Carolina)	Examine whether shift work influences the physical health and mental depression in nurses, which in turn may affect other aspects of their lives. Does shift work affect social and work-related variables which in turn affect the physical health and state of depression?	Descriptive correlation	463	CES-D	Physical health was measured using items from the Mott Study. A three-item scale was used to measure informal social participation. Job performance was measured using the Six-Dimension Scale of Nursing Performance. Job stress was measured by the tool developed by Swiercz.	Neither overall physical health nor mental depression was correlated with shift work.
Taghinejad, Suhrabi, Kikhavani, Jaafarpour, and Azadi	2014	Iran	Investigate the association between mental health and demographic characteristics of registered nurses, and examine the mental health status based on physical, anxiety, social function, and depression items.	Descriptive	86	GHQ-28	None	More than 43% of the samples were suspected to suffer from a mental disorder—of those, 12.3% showed physical symptoms, 16% anxiety symptoms, 42% social dysfunction, and 6.2% depressive symptoms. No significant difference in mental health was found between male and female registered nurses. Significant differences were found among nurses based on their workplaces in hospitals and marital status.

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Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Tourigny, Baba, and Wang	2010	Japan and China	Analyze the relationship between emotional exhaustion and depersonalization, diminished personal accomplishment, and symptoms of depression. Investigate how nurses in China and Japan use coping strategies aimed at alleviating the detrimental effect of emotional exhaustion.	Correlation	789	CES-D	MBI, Sense of Coherence Questionnaire, Kerr Job Satisfaction Scale, self-report of absence.	Job satisfaction had a significant main effect on depersonalization, diminished personal accomplishment, and depression in both Japanese and Chinese nurses.
Tselebis, Moulou, and Ilias	2001	Greece	Assess the relationship between burnout, depression, and sense of coherence in Greek nurses.	Correlation	79	BDI	MBI, Sense of Coherence Questionnaire	Women scored higher on the BDI. Sense of coherence was negatively and strongly correlated with depressive symptoms. Depression was positively correlated with sentimental exhaustion and negatively with personal achievements as measured via MBI.
van Servellen, Soccorso, Palermo, and Faude	1985	The United States (California)	What is the prevalence of depressive illness in this sample of hospital nurses? What type of depressive illness is more prevalent in this sample? What are the critical symptoms most frequently exhibited by these nurses? What is the prevalence of current subclinical depressive phenomena? How do these rates of depressive illness and depressive features compare with community samples using the same research instruments?	Descriptive	64	CES-D, DIS, and SCL-90R	None	The prevalence of clinical depression in the sample was significantly higher than that found in females in the population at large. Major depressive illness was more prevalent than dysthymic disorder. The most frequently reported expressed symptoms were continual tiredness, trouble sleeping, thoughts about death, depressed mood (2 weeks or more), and trouble concentrating.

(continued)

Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
S. M. Wang et al.	2015	Taiwan	Is work stress correlated with depression in psychiatric nurses? What is the relationship between work stress and resourcefulness in psychiatric nurses? Are work stress and resourcefulness predictors of depression in psychiatric nurses?	Correlation	154	TDQ	Nursing Stress Checklist, Resourcefulness Scale.	Single psychiatric nurses had significantly higher depression levels than married nurses. The depression levels of nurses working in acute units were significantly higher than those working in non-acute units. A significant positive correlation was found between work stress and depression—implying that the higher the work stress the more depression they experienced. Personal resourcefulness and depression in psychiatric nurses were negatively correlated. In summation, psychiatric nurses who were single, who worked in acute units, and undertook shift work had significantly higher depression levels than married psychiatric nurses who worked in non-acute units, and did not undertake shift work.
Welsh	2009	The United States (Kentucky)	Describe the prevalence of depressive symptoms and their predictors in female medical surgical nurses.	Descriptive correlative	150	CES-D	Nursing Stress Scale: a list of 34 potentially stressful situations attached to a Likert-type response. Social Readjustment Rating Scale: a 43-item scale with stressful events assigned higher points. Higher scores indicate major stressful life events and higher risk for illness. The PHQ-15 was used to measure somatic complaints.	Thirty-five percent of nurses score ≥ 16 on the CES-D, the cutoff point for mild to moderate depressive symptoms. Depressive symptoms were positively correlated with somatic symptoms, major life events, and occupational stress. There were no differences between depressive symptoms, major life events, or occupational stress levels by academic degree. Fatigue, pain, and trouble sleeping were the most frequently cited somatic complaints.

(continued)

Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Wu, Ge, Sun, Wang, and Wang	2011	China	Investigate the relationship between depressive symptoms and occupational stress.	Descriptive correlative	1,986	CES-D	10-item OSI-R to measure occupational stress.	Role overload, role insufficiency, and role boundary predicted depressive symptoms. Increasing social support and rational coping may reduce depressive symptoms and improve quality of life.
Yoon and Kim	2013	Korea	Examine the relationship between job-related stress, emotional labor, and depressive symptoms in South Korean Nurses.	Descriptive	441	CES-D	Korean Occupational Stress Scale—a 24-item short scale to measure level and sources of job-related stress. ELS—a six-item scale to measure surface acting and deep acting regarding emotional expression.	Thirty-eight percent of Korean nurses experience depressive symptoms, and participants in this study suffered from depressive symptoms far more than Western nurses or employees working in other occupations in South Korea. Marital status, surface acting, job insecurity, and lack of reward are strongly related to depressive symptoms that result from job-related stress. Marital status has the strongest relationship with depressive symptoms—young or single nurses have high levels of depressive symptoms.

(continued)

Table 1. (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Yoshizawa et al.	2016	Japan	What is the prevalence of depression in Japanese psychiatric nurses? Do sociodemographic and occupational factors relate to depression among psychiatric nurses in Japan?	Descriptive	238	CES-D	NIOSH GJSC, questionnaire for lifestyle factors	Frequency of clinical depression was 36.4% for males and 37.2% for females. Participants with higher scores for role conflict, role ambiguity, quantitative workload, variance in workload, and occupational hazards were more likely to display depressive symptoms. Also, those with lower scores for job control, social support from supervisors and coworkers was more likely to display depressive symptoms. After adjusting for all the variables, older age, higher HPI score, job control, and social support from a supervisor were found to be significant protective factors against depressive symptoms. Quantitative workload scores were revealed as a risk for having probable depression.

Note. GHQ-30 = General Health Questionnaire; JDI = Job Descriptive Index; ICU = intensive care unit; IM = internal medicine; PSR = Provision of Social Relations; BDI-R = Beck Depression Inventory–Revised; CES-D = Center for Epidemiologic Studies Depression Scale; ER = emergency room; HADS = Hospital Anxiety and Depression Scale; PSQI = Pittsburgh Sleep Quality Index; KSQ = Karolinska Sleep Questionnaire; SHC = Subjective Health Complaints Inventory; GSES = General Self-Efficacy Scale; PSS-10 = Perceived Stress Scale–10 items; PANSI-PI = Positive and Negative Suicide Ideation [Positive Ideation]; SCS = Self Control Schedule; BIS = Bergen Insomnia Scale; AUDIT-C = Alcohol Use Disorders Identification Test; JCQ = Job Content Questionnaire; ERI = effort reward imbalance; BDI = Beck Depression Inventory; MBI = Maslach Burnout Inventory; DASS = Depression Anxiety Stress Scale; HTEC = Hospital Trauma Exposure Checklist; PHQ-9 = Patient Health Questionnaire–9; TDS = total depression score; BMI = body mass index; ERI = Effort Reward Imbalance; JCQ = Job Content Questionnaire; WCCL = Ways of Coping Checklist; LOT-R = Life Orientation Test–Revised; JAWS = Job-Related Affective Well-being Scale; CIDI = Composite International Diagnostic Interview; SSICFS = Standard Shiftwork Index Chronic Fatigue Scale; BAI = Beck Anxiety Inventory; CSEI = Coopersmith Self-Esteem Inventory; STAI = Strait-Trait Anxiety Inventory; ASES = Adult Self Expression Scale; DIS = Diagnostic Interview Schedule; SCL-90R = Symptom Checklist–90 Revised; TDQ = Taiwanese Depression Questionnaire; OSI-R = Occupational Stress Inventory revised edition; ELS = Emotional Labor Scales; NIOSH = The National Institute for Occupational Safety and Health; GJSC = Generic Job Stress Questionnaire; HPI = Health Practice Index.

strain were also significant correlates of depression (Mark & Smith, 2012). Shift work or working alternating shifts was positively associated with depression (Arafa et al., 2003; Eldevik, Flo, Moen, Pallesen, & Bjorvatn, 2013; Flo et al., 2012; Flo, Pallesen, Moen, Waage, & Bjorvatn, 2014; Ruggiero, 2003). Higher job satisfaction, self-efficacy, optimism, learned resourcefulness, and positive ideation were negative correlates and significant buffers against depression (Chang et al., 2011; Chung et al., 2012; Gao et al., 2012; Morrissy et al., 2013; S. M. Wang et al., 2015).

Depressive symptomatology

The most frequently reported depressive symptoms by registered nurses included continual fatigue, trouble sleeping, thoughts about death, depressed mood (2 weeks or more), and trouble concentrating (van Servellen et al., 1985; Welsh, 2009). In addition to these depressive symptoms and somatic complaints, depression in some instances was accompanied by anxiety or anxious feelings (Ardekani et al., 2008; Bjorvatn et al., 2012; De Leo et al., 1983; Hegney et al., 2014; Morrissy et al., 2013; Oyane, Pallesen, Moen, Akerstedt, & Bjorvatn, 2013; Ruggiero, 2003). Depression was often accompanied by report of at least one chronic disease (Gao et al., 2012; Ohler et al., 2010).

Personal Characteristics

The literature consistently cites age as a main contributor to depression in registered nurses. Unlike the general population, as nurses age, they are less likely to suffer from depression and depressive symptomatology (Arafa et al., 2003; Ohler et al., 2010; Yoon & Kim, 2013). Ohler and colleagues (2010) found in their study of 9,322 registered nurses that younger nurses had nearly double the odds of depression. This finding is supported by other research that reported increasing age was a protective factor against depression (Skinner & Scott, 1993; Yoshizawa et al., 2016). In addition, marital status was also a strong predictor of depression in registered nurses with the research showing that single and divorced nurses had the highest prevalence of depressive factors (Ardekani et al., 2008; S. M. Wang et al., 2015; Yoon & Kim, 2013).

Work Characteristics

Acute hospital-based registered nurses reported higher levels of depression; the level of clinical unit acuity was directly related to this finding with psychiatric, intensive care and surgical units' nurses reporting the highest levels of depression or depressive symptomatology (Arafa et al., 2003; Bjorvatn et al., 2012; Chiang & Chang, 2012; De Leo et al., 1983). Job strain, role overload, role insufficiency, and diminishing role boundaries predicted depressive symptoms in a sample of 1,986 Chinese nurses (Wu et al., 2011). Furthermore, according to Ohler and colleagues (2010), nurses experiencing job strain were 80% more likely to suffer from depression. Other factors such as lack of supervisor support, job insecurity, lack of reward, and job-related stress are strongly correlated with depressive symptoms (Yoon & Kim, 2013). It is quite plausible that younger nurses have higher rates of depression due to the work environment. Work satisfaction, shift work, fatigue, and fewer years of work experience have been found to be strong correlates of psychological health (Arafa et al., 2003; Flo et al., 2012; Flo et al., 2014).

Discussion

This review explored the prevalence and predictors of depression in registered nurses from 36 published studies. Overall, evidence from this review confirmed a troubling prevalence of depressive symptoms in this population. Figure 2 provides a brief summary of the results.

Currently, insufficient rigorous research studies using randomized samples or longitudinal analyses have examined this issue. Research is scattered globally with limited study designs and samples. Additional research is needed that will further guide and define depression in registered nurses.

Although nursing is predominantly a female profession, the review revealed that when gender was included, female registered nurses experienced higher rates of depression. In the U.S. population, women experience depression at a rate twice that of men with an estimated 7 million women diagnosed with major depression each year (NAMI, 2008). This excessive rate is often attributed to additional stressors and challenges faced by women at home and work (Bronder, Speight, Witherspoon, & Thomas, 2014; NIMH, 2014; Williams et al., 2007). This review of the literature noted mixed results for the role of social and family support and depression among nurses. More research should be conducted to provide foundational knowledge about the complexities of interactions between work, and family and community roles among registered nurses, particularly among female nurses who have increased risk for depression.

In addition to gender, the review revealed that younger nurses had higher rates of depression than older nurses. This finding is inconsistent with general literature on the topic that suggests that as one ages, the risk for depression increases (CDC, 2012). In the general population, older individuals are at risk for persistent and recurring (chronic) depression, which may exacerbate health conditions or cause new issues (American Psychological Association, 2015). Findings of this study may be partially explained by the healthy worker survivor effect which describes a continuing selection process such that those who remain employed tend to be healthier than those who leave employment (Arrighi & Hertz-Picciotto, 1994). Due to the possibility of the healthy worker effect in registered nurses, some caution regarding this finding and a need for further research should be understood.

In addition to age, it is worth noting that length of employment is also strongly correlated with depression. Therefore, specific measures should be used to ensure that early psychosocial interventions for these nurses are introduced upon initial hire and not only when nurses first begin to exhibit symptoms of depression or concurrent syndromes like anxiety or fatigue. Peer support systems may assist new nurses as they enter the workforce (Harrison-White & Simons, 2013). The

Predictors of Depression for Registered Nurses	*Protective Factors for Registered Nurses*
• Female gender • Younger age • Single and/or divorced • Fewer years of work experience • Work setting • Unit acuity • Shift work • Workplace violence or trauma • Job strain • Role overload • Role insufficiency • Diminished role boundaries • Lack of supervisor support • Job insecurity • Lack of reward • Lower job satisfaction	• Older age • Married • More years of work experience • Positive evaluations and expectations toward self and others • Higher job satisfaction • Self-efficacy • Optimism • Learned resourcefulness • Positive ideation

Figure 2. Depression in registered nurses: Brief summary of results.

complexity of young registered nurses' work may include additional pressures for advanced education, new family roles, and launching their careers which may combine to elevate the risk of depression (Charnley, 1999; Harrison-White & Simons, 2013).

The CDC's (2015) Total Worker Health Model may be used by occupational health nurses to more fully assess the risk of depression among vulnerable employees. A Total Worker Health approach is defined as "policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being" (CDC, 2015, para. 1).

Registered nurses at risk for depression should be monitored for somatic symptoms and chronic illnesses. Fatigue can be a somatic complaint related to depression; however, nurse fatigue can also result from shift work disorder (Flo et al., 2012; S. M. Wang et al., 2015). Much of the depression risk in younger nurses may be attributed to these nurses being immediately assigned to non-traditional shifts when they begin practice. Although younger nurses experience depression at higher rates than older nurses, older nurses should still be monitored for chronic illnesses that may increase their risk for depression (Gao et al., 2012; Ohler et al., 2010). The average age of the nursing workforce is steadily increasing; the average age of registered nurses working in the United States is 50; more than 53% of registered nurses work past the age of 50. With increased age comes increased risk for chronic illness. Older nurses tend to have greater body mass indexes (BMIs), higher pain scores, and less health-related productivity than younger nurses (S. Letvak, Ruhm, & Gupta, 2013).

In this review, studies could be better characterized as a patchwork quilt than a well-established, consistent examination of depression in registered nurses. Across studies, the research questions and specific aims were broad, and no gold standard depression instrument was used; instead, researchers used a variety of instruments. One of the ways to combat this problem is to have a clear conceptual picture and theoretical framework to guide research and practice. Based on the psychosocial risk management literature, this conceptual framework should include components that pose the greatest risk to worker health including personal characteristics, job content, workload and work pace, control, environment and equipment, organizational culture and function, interpersonal relationships at work, role in organization, and home and work interface (WHO, 2008).

Implications

These findings have far reaching implications for occupational health nurses. Registered nurses must be healthy and focused to function at optimal capacity. One practical starting point to address depression in registered nurses is to examine organizational structure and support. An essential role of occupational health nurses is to ensure that program policies support, encourage, emphasize, and prioritize worker health (Campbell & Hanna, 2014). As the review indicated, work environment is a major predictor of depression in registered nurses. Improving work environments for registered nurses might, in turn, improve their psychological health and decrease their risk for depression. As such, it is critical that occupational health nurses create workplaces that value and support health care workers (Campbell & Hanna, 2014).

From an occupational health and safety perspective, it is critical that occupational health nurses are advocates for health promotion and management. A well-planned needs assessment

that measures workforce health risks, identified needs, employee productivity, and program costs and benefits may assist in the development of targeted interventions (Campbell & Hanna, 2014). Occupational health nurses have a unique ability as front-line providers to collect data, analyze trends, and report research findings on depression in registered nurses. Occupational health nurses can provide case management, clinical support, education, advocacy, and support for registered nurses experiencing depression (Campbell & Hanna, 2014).

In addition to clinical and management interventions, collaboration with primary care providers and mental health professionals to screen, diagnose, and treat depression in registered nurses is imperative. To achieve optimal health in registered nurses, it is crucial that occupational health nurses properly identify depression and additional risk factors for this disease. Because depression is complex and often associated with other chronic conditions, it may also be advantageous for occupational health nurses to form interdisciplinary health care management teams to strengthen early identification and treatment. It is vital for occupational health nurses to understand the implications behind these findings and create pathways to better health and workplace wellness.

Limitations

Currently, no accepted theoretical framework addresses personal and workplace concepts impacting depression in registered nurses. A comprehensive theoretical model is needed to fully conceptualize many of the variables identified in this review of the literature and understand their impact on depression. The bulk of the articles examined in this review were descriptive or correlational in design and used cross-sectional data from convenience samples. None of these design methods can definitively determine causality. Future research should incorporate more rigorous designs including experimental and longitudinal studies.

In addition to study design, the psychometric measures and instrumentation should be consistent across studies. This review identified a multitude of instruments that were used to assess the concept of depression including the Beck Depression Inventory I and II, Center for Epidemiologic Studies Depression Scale, Depression and Anxiety Stress Scale, General Health Questionnaire–28, Hospital and Anxiety Depression Scale, Patient Health Questionnaire–9, and Zung Self-Rating Depression Scale. The Beck Depression Inventory I and II and the Center for Epidemiologic Studies Depression Scale were used in more than half of the research articles. However, a standard measurement for depression across research studies is a needed step in establishing consistency across future research studies.

Finally, although the international burden of depression has been explored, the prevalence and correlates of depression in America's two largest and fastest growing minority populations is not at the forefront of this literature. It is well established that individuals of diverse racial and ethnic backgrounds experience disproportionately higher rates of selected diseases and health conditions than the general population (American Public Health Association [APHA], 2014). Researchers have found that even though Black Americans have a lower lifetime risk for depression than White Americans, this population is more likely to be persistently ill once diagnosed with depression (Williams et al., 2007); chronic depression is substantially higher in Black Americans. Most recent chronic depression rates have been reported as 57% for Black Americans and 38% for White Americans (Kim, 2014). In Latinos, being U.S. born, or second or higher generation immigrant, was associated with higher levels of depression (Wassertheil-Smoller et al., 2014). In addition, Puerto Ricans experience higher prevalence of depression than Mexican Americans, women higher than men, those with less than a high school education higher than those with a high school diploma or higher, and those aged 45 to 64 years than those older or younger (Wassertheil-Smoller et al., 2014). With the increasing diversity of the U.S. population and the emphasis on cultural concordance for health care providers, understanding the impact of depression on minority workers is a crucial step in addressing depression in ethnic minority registered nurses. However, to date, no researchers have studied depression in ethnic minority registered nurses working in the United States. Thus, additional research investigating the mental health of nurses from racial and gender minority groups is needed.

Conclusion

Depression experienced by registered nurses may not be fully preventable, but realizing its presence and prevalence in the workplace is of vital importance. It is essential that the United States has a healthy, vibrant, and present registered nurse workforce to ensure that quality patient outcomes are achieved. Occupational health nurses are essential participants in improving the mental health of registered nurses. To fully comprehend the magnitude and impact of depression among registered nurses, occupational health nurses working in all settings must be cognizant of the role they play in assessing, recognizing, referring, collaborating, researching, and managing the care of this unique occupational group.

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References

American Psychiatric Foundation, Partnership for Workplace Mental Health. (2015). *A mentally health workforce—It's good for business.* Retrieved from http://www.workplacementalhealth.org/Business-Case.aspx

American Psychological Association. (2015). *Aging and depression.* Retrieved from http://www.apa.org/helpcenter/aging-depression.aspx

American Public Health Association. (2014). *Health disparities: The basics.* Retrieved from https://www.apha.org/publications-and-periodicals/fact-sheets

Arafa, M. A., Nazel, M. W., Ibrahim, N. K., & Attia, A. (2003). Predictors of psychological well-being of nurses in Alexandria, Egypt. *International Journal of Nursing Practice*, *9*, 313-320. doi:10.1046/j.1440-172x.2003.00437.x

Ardekani, Z. Z., Kakooei, H., Ayattollahi, S. M., Choobineh, A., & Seraji, G. N. (2008). Prevalence of mental disorders among shift work hospital nurses in Shiraz, Iran. *Pakistan Journal of Biological Sciences*, *11*, 1605-1609. doi:10.3923/pjbs.2008.1605.1609

Arrighi, H. M., & Hertz-Picciotto, I. (1994). The evolving concept of the healthy worker survivor effect. *Epidemiology*, *5*, 189-196. doi:10.1097/00001648-199403000-00009

Baba, V. V., Galperin, B. L., & Lituchy, T. R. (1999). Occupational mental health: A study of work-related depression among nurses in the Caribbean. *International Journal of Nursing Studies*, *36*, 163-169. doi:10.1016/s0020-7489(99)00002-4

Bjorvatn, B., Dale, S., Hogstad-Erikstein, R., Fiske, E., Pallesen, S., & Waage, S. (2012). Self-reported sleep and health among Norwegian hospital nurses in intensive care units. *Nursing in Critical Care*, *17*, 180-188. doi:10.1111/j.1478-5153.2012.00504.x

Bronder, E. C., Speight, K. M., Witherspoon, K. M., & Thomas, A. J. (2014). John Henryism, depression, and perceived social support in Black women. *Journal of Black Psychology*, *40*, 115-137. doi:10.1177/0095798412474466

Budden, J. S., Zhong, E. H., Moulton, P., & Cimiotti, J. (2013). The National Council of State Boards of Nursing and the forum of state nursing workforce centers 2013 national workforce survey of registered nurses. *Journal of Nursing Regulation*, *4*(2), 5-14. doi:10.1016/s2155-8256(15)30136-8

Campbell, K., & Hanna, J. C. (2014). *Individual and organizational health and well-being.* Pensacola, FL: American Association of Occupational Health Nurses.

Centers for Disease Control and Prevention. (2012). *An estimated 1 in 10 U.S. adults report depression.* Retrieved from http://www.cdc.gov/men/az/depression.htm

Centers for Disease Control and Prevention. (2015). *Total worker health.* Retrieved from http://www.cdc.gov/niosh/TWH/

Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. (2013). *Women's safety and health issues at work.* Retrieved from http://www.cdc.gov/niosh/topics/women/work-structure.html

Chang, Y., Wang, P.-C., Li, H.-H., & Liu, Y.-C. (2011). Relations among depression, self-efficacy and optimism in a sample of nurses in Taiwan. *Journal of Nursing Management*, *19*, 769-776. doi:10.1111/j.1365-2834.2010.01180.x

Charnley, E. (1999). Occupational stress in the newly qualified staff nurse. *Nursing Standard*, *13*(29), 33-36.

Chiang, Y. M., & Chang, Y. (2012). Stress, depression, and intention to leave among nurses in different medical units: Implications for healthcare management/nursing practice. *Health Policy*, *108*, 149-157. doi:10.1016/j.healthpol.2012.08.027

Chung, C.-C., Lin, M.-F., Ching, Y.-C., Kao, C.-C., Chou, Y.-Y., Ho, P.-H., & Chang, H.-J. (2012). Mediating and moderating effects of learned resourcefulness on depressive symptoms and positive ideation in hospital nurses in Taiwan. *Research in Nursing & Health*, *35*, 576-588. doi:10.1002/nur.21505

De Leo, D., Magni, G., Vallerini, A., & Dal Palu, C. (1983). Assessment of anxiety and depression in general and psychiatric nurses. *Psychological Reports*, *52*, 335-337. doi:10.2466/pr0.1983.52.1.335

Eldevik, M. F., Flo, E., Moen, B. E., Pallesen, S., & Bjorvatn, B. (2013). Insomnia, excessive sleepiness, excessive fatigue, anxiety, depression and shift work disorder in nurses having less than 11 hours in-between shifts. *PLoS ONE*, *8*(8), e70882. doi:10.1371/journal.pone.0070882

Flo, E., Pallesen, S., Mageroy, N., Moen, B. E., Gronli, J., Hilde Nordhus, I., & Bjorvatn, B. (2012). Shift work disorder in nurses–assessment, prevalence and related health problems. *PLoS ONE*, *7*(4), e33981. doi:10.1371/journal.pone.0033981

Flo, E., Pallesen, S., Moen, B. E., Waage, S., & Bjorvatn, B. (2014). Short rest periods between work shifts predict sleep and health problems in nurses at 1-year follow-up. *Occupational and Environmental Medicine*, *71*, 555-561. doi:10.1136/oemed-2013-102007

Gao, Y. Q., Pan, B. C., Sun, W., Wu, H., Wang, J. N., & Wang, L. (2012). Depressive symptoms among Chinese nurses: Prevalence and the associated factors. *Journal of Advanced Nursing*, *68*, 1166-1175. doi:10.1111/j.1365-2648.2011.05832.x

Glass, D. C., McKnight, J. D., & Valdimarsdottir, H. (1993). Depression, burnout, and perceptions of control in hospital nurses. *Journal of Consulting and Clinical Psychology*, *61*, 147-155. doi:10.1037/0022-006x.61.1.147

Gong, Y., Han, T., Yin, X., Yang, G., Zhuang, R., Chen, Y., & Lu, Z. (2014). Prevalence of depressive symptoms and work-related risk factors among nurses in public hospitals in southern China: A cross-sectional study. *Scientific Reports*, *4*, Article 7109. doi:10.1038/srep07109

Harrison-White, K., & Simons, J. (2013). Preceptorship: Ensuring the best possible start for new nurses. *Nursing Children and Young People*, *25*(1), 24-27. doi:10.7748/ncyp2013.02.25.1.24.s9536

Hegney, D. G., Craigie, M., Hemsworth, D., Osseiran-Moisson, R., Aoun, S., Francis, K., & Drury, V. (2014). Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: Study 1 results. *Journal of Nursing Management*, *22*, 506-518. doi:10.1111/jonm.12160

Iacovides, A., Fountoulakis, K. N., Moysidou, C., & Ierodiakonou, C. (1999). Burnout in nursing staff: Is there a relationship between depression and burnout? *International Journal of Psychiatry in Medicine*, *29*, 421-433. doi:10.2190/5yhh-4cvf-99m4-mj28

Kawano, Y. (2008). Association of job-related stress factors with psychological and somatic symptoms among Japanese hospital nurses: Effect of departmental environment in acute care hospitals. *Journal of Occupational Health*, *50*(1), 79-85. doi:10.1539/joh.50.79.

Kim, M. (2014). Racial/ethnic disparities in depression and its theoretical perspectives. *Psychiatric Quarterly*, *85*, 1-8. doi:10.1007/s11126-013-9265-3

Lam, L. T., Ross, F. I., Cass, D. T., Quine, S., & Lazarus, R. (1999). The impact of work related trauma on the psychological health of nursing staff: A cross sectional study. *Australian Journal of Advanced Nursing*, *16*(3), 14-20.

Langlieb, A. M., & DePaulo, J. R., Jr. (2008). Etiology of depression and implications on work environment. *Journal of Occupational and Environmental Medicine*, *50*, 391-395. doi:10.1097/JOM.0b013e31816fca08

Letvak, S. (2013). We cannot ignore nurses' health anymore: A synthesis of the literature on evidence-based strategies to improve nurse

health. *Nursing Administration Quarterly*, *37*, 295-308. doi:10.1097/NAQ.0b013e3182a2f99a

Letvak, S., Ruhm, C., & Gupta, S. (2013). Differences in health, productivity and quality of care in younger and older nurses. *Journal of Nursing Management*, *21*, 914-921. doi:10.1111/jonm.12181

Letvak, S., Ruhm, C. J., & McCoy, T. (2012). Depression in hospital-employed nurses. *Clinical Nurse Specialist*, *26*(3), 177-182. doi:10.1097/NUR.0b013e3182503ef0

Letvak, S. A., Ruhm, C. J., & Gupta, S. N. (2012). Nurses' presenteeism and its effects on self-reported quality of care and costs. *American Journal of Nursing*, *112*(2), 30-38; quiz 48, 39. doi:10.1097/01.NAJ.0000411176.15696.f9

Lin, H., Probst, J. C., & Hsu, Y. (2010). Depression among female psychiatric nurses in southern Taiwan: Main and moderating effects of job stress, coping behaviour and social support. *Journal of Clinical Nursing*, *19*, 2342-2354. doi:10.1111/j.1365-2702.2010.03216.x

Mark, G., & Smith, A. P. (2012). Occupational stress, job characteristics, coping, and the mental health of nurses. *British Journal of Health Psychology*, *17*, 505-521. doi:10.1111/j.2044-8287.2011.02051.x

Morrissy, L., Boman, P., & Mergler, A. (2013). Nursing a case of the blues: An examination of the role of depression in predicting job-related affective well-being in nurses. *Issues in Mental Health Nursing*, *34*, 158-168. doi:10.3109/01612840.2012.740767

National Alliance on Mental Illness. (2008). *Women and depression: What you need to know about this medical illness*. Arlington, VA: Author. Available from www.nami.org

National Alliance on Mental Illness. (2015). *Depression*. Retrieved from http://www.nami.org/Learn-More/Mental-Health-Conditions/Depression

National Institute of Mental Health. (2014). *What is depression?* Retrieved from http://www.nimh.nih.gov/health/topics/depression/index.shtml

Ohler, M. C., Kerr, M. S., & Forbes, D. A. (2010). Depression in nurses. *Canadian Journal of Nursing Research*, *42*(3), 66-82.

Oyane, N. M., Pallesen, S., Moen, B. E., Akerstedt, T., & Bjorvatn, B. (2013). Associations between night work and anxiety, depression, insomnia, sleepiness and fatigue in a sample of Norwegian nurses. *PLoS ONE*, *8*(8), e70228. doi:10.1371/journal.pone.0070228

Putnam, K., & McKibbin, L. (2004). Managing workplace depression: An untapped opportunity for occupational health professionals. *AAOHN Journal*, *52*, 122-129; quiz 130-121.

Ruggiero, J. S. (2003). Correlates of fatigue in critical care nurses. *Research in Nursing & Health*, *26*, 434-444. doi:10.1002/nur.10106

Skinner, K., & Scott, R. D. (1993). Depression among female registered nurses. *Nursing Management*, *24*(8), 42-45. doi:10.1097/00006247-199308000-00011

Skipper, J. K., Jr., Jung, F. D., & Coffey, L. C. (1990). Nurses and shiftwork: Effects on physical health and mental depression. *Journal of Advanced Nursing*, *15*, 835-842. doi:10.1111/j.1365-2648.1990.tb01915.x

Taghinejad, H., Suhrabi, Z., Kikhavani, S., Jaafarpour, M., & Azadi, A. (2014). Occupational mental health: A study of work-related mental health among clinical nurses. *Journal of Clinical and Diagnostic Research*, *8*(9), WC01-WC03. doi:10.7860/jcdr/2014/8247.4835

Tourigny, L., Baba, V., & Wang, X. (2010). Burnout and depression among nurses in Japan and China: The moderating effects of job satisfaction and absence. *The International Journal of Human Resource Management*, *21*, 2741-2761. doi:10.1080/09585192.2010.528656

Tselebis, A., Moulou, A., & Ilias, I. (2001). Burnout versus depression and sense of coherence: Study of Greek nursing staff. *Nursing & Health Sciences*, *3*, 69-71. doi:10.1046/j.1442-2018.2001.00074.x

van Servellen, G. M., Soccorso, E. A., Palermo, K., & Faude, K. (1985). Depression in hospital nurses: Implications for nurse managers. *Nursing Administration Quarterly*, *9*(3), 74-84. doi:10.1097/00006216-198500930-00011

Wang, J., Schmitz, N., Smailes, E., Sareen, J., & Patten, S. (2010). Workplace characteristics, depression, and health-related presenteeism in a general population sample. *Journal of Occupational and Environmental Medicine*, *52*, 836-842. doi:10.1097/JOM.0b013e3181ed3d80

Wang, S. M., Lai, C. Y., Chang, Y. Y., Huang, C. Y., Zauszniewski, J. A., & Yu, C. Y. (2015). The relationships among work stress, resourcefulness, and depression level in psychiatric nurses. *Archives of Psychiatric Nursing*, *29*, 64-70. doi:10.1016/j.apnu.2014.10.002

Wassertheil-Smoller, S., Arredondo, E. M., Cai, J., Castaneda, S. F., Choca, J. P., Gallo, L. C., & Zee, P. C. (2014). Depression, anxiety, antidepressant use, and cardiovascular disease among Hispanic men and women of different national backgrounds: Results from the Hispanic Community Health Study/Study of Latinos. *Annals of Epidemiology*, *24*, 822-830. doi:10.1016/j.annepidem.2014.09.003

Welsh, D. (2009). Predictors of depressive symptoms in female medical-surgical hospital nurses. *Issues in Mental Health Nursing*, *30*, 320-326. doi:10.1080/01612840902754537

Williams, D. R., Gonzalez, H. M., Neighbors, H., Nesse, R., Abelson, J. M., Sweetman, J., & Jackson, J. S. (2007). Prevalence and distribution of major depressive disorder in African Americans, Caribbean Blacks, and non-Hispanic Whites: Results from the National Survey of American Life. *Archives of General Psychiatry*, *64*, 305-315. doi:10.1001/archpsyc.64.3.305

World Health Organization. (2008). *PRIMA-EF: Guidance on the European framework for psychosocial risk management: A resource for employers and work representatives* (Protecting Worker's Health). Geneva, Switzerland: Author.

World Health Organization. (2012). *Depression: A global public health concern*. Retrieved from http://www.who.int/mental_health/management/depression/en/

Wu, H., Ge, C. X., Sun, W., Wang, J. N., & Wang, L. (2011). Depressive symptoms and occupational stress among Chinese female nurses: The mediating effects of social support and rational coping. *Research in Nursing & Health*, *34*, 401-407. doi:10.1002/nur.20449

Yoon, S. L., & Kim, J. H. (2013). Job-related stress, emotional labor, and depressive symptoms among Korean nurses. *Journal of Nursing Scholarship*, *45*, 169-176. doi:10.1111/jnu.12018

Yoshizawa, K., Sugawara, N., Yasui-Furukori, N., Danjo, K., Furukori, H., Sato, Y., . . . Nakamura, K. (2016). Relationship between occupational stress and depression among psychiatric nurses in Japan. *Archives of Environmental & Occupational Health*, *71*, 10-15. doi:10.1080/19338244.2014.927345

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