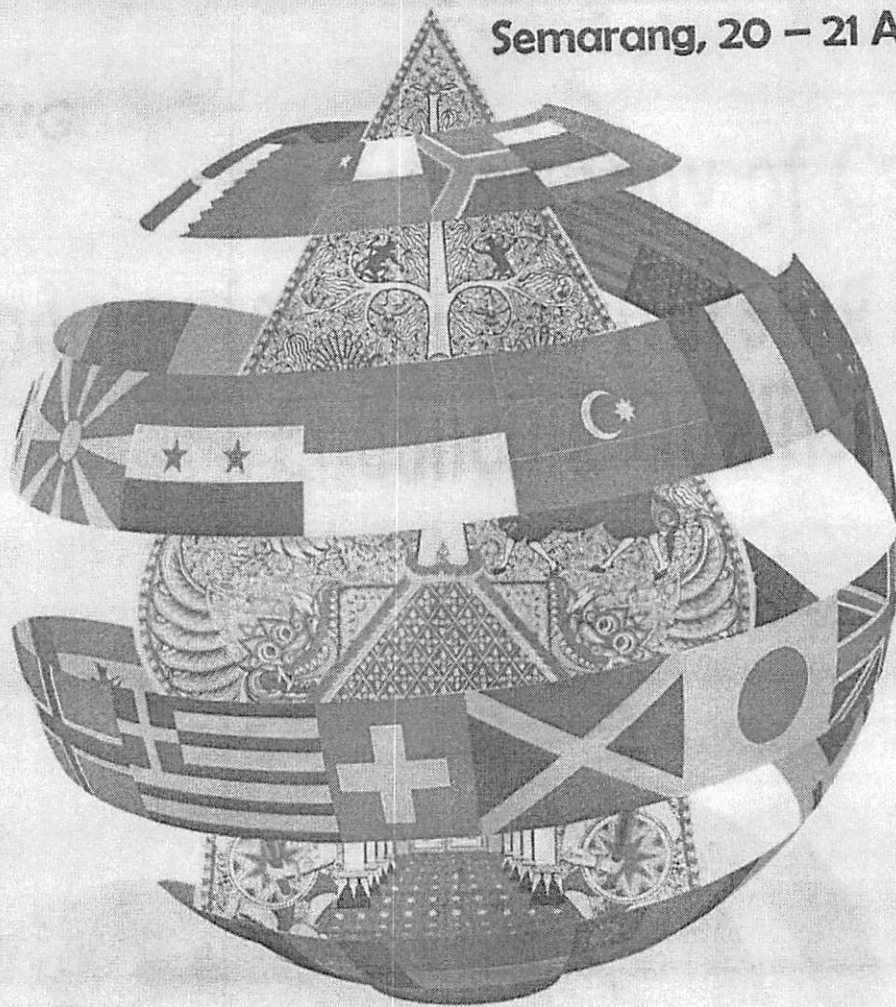


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“Harmony of Caring and Healing Inquiry for Holistic Nursing Practice; Enhancing Quality of Care”

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2015

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ATTACHMENTS

ASSOCIATED FACTOR AND PREDICTOR OF POST STROKE DEPRESSION AFTER 3 MONTH ONSET: A LITERATURE REVIEW

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ABSTRACT

Background Post Stroke Depression (PSD) was the 20 % of unmet needs among the stroke survivor. The peak of depression range 3- 6 months after onset.

Objective: To investigate the associated factor and predictor of post stroke depression after 3 months onset.

Method: The Database search included EBSCO and Science direct. The search was limited to articles written 2005 and 2015. The subject is stroke survivor 3 months after onset. All articles were assessed for eligibility using the Critical Appraisal Skills Program (CASP) evaluation method.

Result: The articles are 344. The articles were elicited with the criteria inclusions. Fifteen articles related with criteria. Only ten articles eligible in the study. The 3 months of post stroke depression incidence was 27.3%. The prevalence range is 17.7 % - 47.4 %.. Associated factors of PSD were younger age, low perceived social support past history of depression, reduced cognitive speed and poorer verbal memory, Deep White Matter Hyperintensities (DWMH), micro bleeds, Hypertension, unfavorable outcomes at 3 months, left hemisphere lesion, plasma glutamate and Glutamate Oxaloacetate Transaminase (GOT). The predictors of PSD at 3 months after onset are outcome and level of handicap at week 2nd after onset and Melancholy index of Hamilton Depression Rankin Scale (HDRS) after 10 days onset.

Discussion: Associated and predictors of post stroke depression are various. Model of associated factor, risk factor and predictor of post stroke depression after 3 months onset were various in variables also. None of them discuss the coping and stress. Depression is the result of stress. Maladaptive coping caused depression.

Conclusion: Associated and predictor of post stroke depression should be examined to detect post stroke depression. Meanwhile stress and coping as a process of depression, it needed to be investigated among stroke survivor after 3 months onset.

Keywords: Post Stroke Depression, 3 months after onset, Associated, Predictor

BACKGROUND

Post Stroke Depression (PSD) after 2 months onset related with fatigue at 1.5 year after onset (Lerdal et al. 2011). PSD related with recurrent stroke after 1 year (Yuan et al. 2012). Depression in acute stroke enhanced the mortality risk in acute stroke survivor (Jiang, Lin, and Li 2014). Depression in acute stroke caused the suicidal thinking. Depression gained to the poor outcome of stroke survivor

(Pandian et al. 2012). PSD was related with the degree of post stroke handicap and functional independence. Early detection of PSDS and their risk factors might help to predict long term outcome and could promote early interventions of (behavioral) rehabilitation treatment strategies (Snaphaan et al. 2009).

OBJECTIVE

This study was aimed to investigate the associated factor and predictor the PSD after 3 months onset.

METHOD

This literature review was conducted using an integrative approach, a method that draws on a diverse range of studies and methodologies to summarize the main points of past research and to delineate what is known about a topic. A systematic search was conducted using the keyword terms/phrases “associated factor post stroke depression,” or “risk factor post stroke depression”, or “predictor post stroke depression” and “3 months”. The databases searched included EBSCO and science Direct. The search was limited to articles written in English, reviewed and published in the period of 2006–2015. A total of 344 abstracts and articles were obtained during the first search. The articles were elicited with the criteria inclusions. The criteria are written in English, article or abstract, and the subjects are 3 month after onset. Fifteen articles related with criteria. Only ten articles eligible in the study.

Table 1 : Associated factor and Predictor of Post Stroke Depression after 3 month onset

Title	Sample	Study	Measurements	Result
A prospective cohort study of lesion location and its relation to post-stroke depression among Chinese patients (W. N. Zhang et al. 2013)	163 ischemic stroke at 3 months	cohort	The diagnosis of PSD was made with World Health Organization Composite International Diagnostic Interview (WHOCIDI), which is based on Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV). The demographic, clinical, and detailed radiological variables (e.g., lesion location, and degree of white matter lesions) were also examined.	The univariate analyses suggested that the frequency of multiple acute infarcts, the total number and volume of acute infarcts were higher in the PSD group than those in the non-PSD group. In particular, PSD patients showed higher rates of infarcts in cortical-subcortical area of the frontal and temporal lobe as well as in internal capsule (including genu, anterior and posterior limb). The multivariate analysis suggested that independent radiological risk factors for PSD may include the presence of multiple acute infarcts, the infarct affecting either side of posterior limb of internal capsule, genu of internal capsule, and cortical-subcortical areas in the temporal lobe.
A prospective cohort study	One hundred	Cross Sectiona	assessment the level of handicap	The 3 month cumulative incidence of post-stroke

of the incidence and determinants of post-stroke depression among the mainland Chinese patients (T. Zhang et al. 2010)	and sixty-five patients consecutive ischemic stroke at 3 months	l	(mRS), severity of depressive symptoms (HDRS) and cognitive function (MMSE).	depression was 27.3% in this patient population. The univariate analysis suggests that the female gender, past history of depression, marital status and level of handicap at 14 days after stroke were factors associated with the development of post-stroke depression. In the multivariate model, female, past history of depression and level of handicap at 14 days after stroke were further confirmed as demographic and clinical factors that correlate with the development of post-stroke depression. female gender, history of depression and level of handicap at 14 days after stroke are three independent determinants of post-stroke depression occurrence during the first 3 months after ischemic stroke in mainland Chinese patients.
A Prospective Study of the Incidence and Correlated Factors of Post-Stroke Depression in China (W. N. Zhang et al. 2013)	91 two weeks after acute ischemic stroke onset and reevaluated 3 month	Longitudinal	Hamilton Depression Scale (HAMD). Stroke severity was measured by the national Institutes of Health Stroke Scale (NIHSS). Stroke outcome was measured by the modified Rankin Scale (mRS).	The incidence of PSD was 27.47% two weeks after stroke. The occurrence of PSD was unrelated with age, stroke type, stroke lesion and the history of disease. In univariate analysis gender, PSD was correlated with female gender. In multivariate logistic regression analysis, poor stroke outcome (mRS \geq 3) was the important predictors of PSD.
Are Vascular Risk Factors Associated With Post-Stroke Depressive Symptoms? (Tennen et al. 2011)	102 patients with ischemic stroke at 4 month	cross-sectional observational study	National Institutes of Health Stroke Scale (NIHSS). The Center for Epidemiological Studies Depression scale (CES-D) was used to screen for depressive symptoms. Cognition was assessed using the Mini-Mental State Examination (MMSE).	Depression scale to determine depressive symptoms, 37.2%. Hypertension was associated with post-stroke depressive symptoms, while there was no relationship between PSD and other VRFs. Hypertension may have a greater impact than other VRFs on mood following stroke and may have a role in prevention and treatment of PSD
Post-stroke depression: can we predict its	85 patient at first 10 days from the onset	A prospective and observational	Hamilton Depression Rankin Scale (HDRS)	From a total of 85 patients with CI, 59 patients completed the 3-month follow-up and 17 of them (28.8 %) fulfilled PSD criteria

development from the acute stroke phase? (Fuentes et al. 2009)	of stroke and repeated at the 3-month follow-up	ional cohort study		at the 3-month follow-up. Melancholy index of the HDRS ≥ 1.5 could be a useful clinical tool to detect patients with acute stroke at high risk of developing PSD.
Poststroke depression and emotional Incontinence (Choi-Kwon et al. 2012)	508 consecutive patients with acute ischemic stroke for PSD and PSEI at admission and 3 months later	cohort study	DSM-IV Diagnostic and Statistical Manual of Mental Disorders, 4th edition; mRS modified Rankin scale; NIHSS NIH Stroke Scale; PSD poststroke depression;.	PSD and PSEI were present in 13.7% and 9.4% of patients, respectively, at admission and in 17.7% and 11.7%, respectively, at 3 months after stroke. Multivariate analyses showed that PSD at admission was associated with the NIH Stroke Scale score at admission, whereas PSD at 3 months was associated with the presence of microbleeds and perceived low social support. In contrast, only lesion location was associated with PSEI at admission, whereas modified Rankin Scale score, STin2 VNTR and low social support were related to PSEI 3 months after stroke..
White Matter Hyperintensity as a Factor Associated with Delayed Mood Disorders in Patients with Acute Ischemic Stroke (Kim et al. 2011)	133 acute ischemic Stroke 3 months after stroke onset	prospectively registered and retrospectively analyzed study	Hospital Anxiety and Depression Scale (HADS)	Of the 133 patients, 47.4% were 'depressive' and 56.4% were 'anxious' at baseline. The depressive and anxious groups had a significantly higher frequency of severe white matter hyperintensity (WMH) than the nondepressive and nonanxious. The independent factors of PSD and PSA at 3 months were deep white matter hyperintensities (DWMH) and modified Rankin scale 0 to 1 at 3 months.
A Prospective Study of the Incidence and Correlated Factors of Post-Stroke Depression in China (W. Zhang et al. 2013)	102 patient 2 weeks after acute ischemic stroke onset and then reevaluated at three months.	prospective hospital-based study.	Hamilton depression Rating Scale (HAMD)	The incidence of PSD was 27.47% two weeks after stroke. The occurrence of PSD was unrelated with age, stroke type, stroke lesion and the history of disease. In univariate analysis gender, PSD was correlated with female gender. In multivariate logistic regression analysis, poor stroke outcome (mRS ≥ 3) was the important predictors of PSD occurrence during the first 2 weeks after stroke in China.
Depression and anxiety 3 months post stroke:	3 months post stroke in 73	Cross Sectional Study	The BDI-II was used to measure depression. Beck Anxiety Inventory	Prevalence of moderate to severe depression and anxiety in the sample were high (22.8 and 21.1%, respectively), with co-

Prevalence and correlates (Barker-collo 2007)	individuals.		(BAI). Functional Index Measure (FIM), California Verbal Learning Test-II (CVLT-II), Visual Paired Associates (VPA)	morbidity in 12.3% of cases. In regression analysis, 74.6% of variance in depression was explained, with significant relationships between increased depression and younger age, reduced cognitive speed, poorer verbal memory, left hemisphere lesion, and increased impact of interference (Stroop ratio).
Plasma levels of glutamate during stroke is associated with development of post-stroke depression (Cheng et al. 2014)	209 in Acute ischemic at admission and Stroke 3-month follow-up and 120 healthy volunteers	Comparison Study	DSM-IV (SCID-I-R) (The severity of depressive symptoms was measured with the 17 item Hamilton depression rating scale (HAM-D)	During the study period, 209 patients were included in the analysis. Seventy patients (33.5%) were diagnosed as having major depression at 3 month. Patients with major depression showed higher levels of plasma glutamate and lower GOTat admission. In multivariate analyses, plasma glutamate and GOT were independent predictors of PSD at 3 months Plasma levels of glutamate after adjustment for possible variables.

RESULT

The 3 month of post-stroke depression incidence was 27.3% (T. Zhang et al. 2010). The prevalence range is 17.7 % - 47.4 %. The distributed of study prevalence are 47.4 (Kim et al. 2011) 37 % (Tennen et al. 2011), 33.5 % (Cheng et al. 2014), 28.8 % (Fuentes et al. 2009) and 17.7 % (Choi-Kwon et al. 2012). Female gender was correlated with PSD (W. N. Zhang et al. 2013) (T. Zhang et al. 2010). Younger age also associated with PSD. Low perceived social support was correlate with PSD (Choi-Kwon et al. 2012). Poor outcome was related with PSD (Barker-collo 2007). The poor outcome or the level of handicap at week 2nd after onset was the important predictors of PSD (W. N. Zhang et al. 2013) (T. Zhang et al. 2010). The poor outcome (mRS \geq 3) with modified ranking Scale protocol (W. N. Zhang et al. 2013). Delayed depression at 3 months also related with unfavorable outcomes (Kim et al. 2011), Past history of depression was related with PSD (T. Zhang et al. 2010). Melancholy index of Hamilton Depression Rankin Scale (HDRS) was associated with a risk three times greater than that of PSD at the 3-month follow-up. Melancholy index of the HDRS \geq 1.5 could be a useful clinical tool to detect patients with acute ischemic stroke. past history was also contributed the depression (Fuentes et al. 2009). Reduced cognitive speed and poorer verbal memory were associated with PSD (Barker-collo 2007)

Hypertension was associated with post-stroke depressive symptoms, while there was no relationship between PSD and other VRFs. Hypertension may have a greater impact than other VRFs on mood following stroke and may have a role in prevention and treatment of PSD (Tennen et al. 2011). delayed depression ischemic stroke were related to the severity of DWMH and unfavorable outcomes

at 3 months (Kim et al. 2011). PSD at 3 months was associated with the presence of microbleeds (Choi-Kwon et al. 2012). deep white matter hyperintensities (DWMH) and unfavorable outcomes at 3 months (Kim et al. 2011). PSD patients showed higher rates of infarcts in cortical-subcortical area of the frontal and temporal lobe as well as in internal capsule (including genu, anterior and posterior limb). independent radiological as risk factors for PSD may include the presence of multiple acute infarcts, the infarct affecting either side of posterior limb of internal capsule, genu of internal capsule, and cortical-subcortical areas in the temporal lobe (W. N. Zhang et al. 2013). Left hemisphere lesion also contributed to the PSD (Barker-collo 2007). Patients with major depression showed higher levels of plasma glutamate and lower GOT at admission. Plasma glutamate and Glutamate oxaloacetate transaminase (GOT), were independent predictors of PSD at 3 months (Cheng et al. 2014).

DISCUSSION

The aim of this study was to investigate the associated factor and predictor of PSD after 3 months onset. The results are various. Associated factors of PSD were younger age, low perceived social support past history of depression, reduced cognitive speed and poorer verbal memory, Deep White Matter Hyperintensities (DWMH), micro bleeds, Hypertension, unfavorable outcomes at 3 months, left hemisphere lesion, plasma glutamate and Glutamate Oxaloacetate Transaminase (GOT). A few study show predictors of PSD at 3 months after onset are outcome and level of handicap at week 2nd after onset and Melancholy index of Hamilton Depression Rankin Scale (HDRS) after 10 days onset.

Reasons for the gender difference in PSD are not clear yet, but may include both genetic factors (e.g. differences in brain functioning and organization) and psychosocial factors. Poor social support is a risk factor of depression (Jiang, Lin, and Li 2014). Family support significantly increased social activities and improved quality of life for carers, with no significant effects on patients (Mant et al. 2000) Post Stroke depression related with level of post stroke handicap and functional independence (Snaphaan et al. 2009). Delayed depression at 3 months also related with unfavorable outcomes (Kim et al. 2011). High self-efficacy, no history of pre-stroke depression, and high levels of perceived social support were the strongest protective factors for depressive symptoms (Lewin, Jöbges, and Werheid 2013). Though the specific mechanism of PSD has not been fully elucidated, literature has traditionally examined the role of specific lesion location, and more recent studies have explored the potential impact of the chronic accumulation of vascular lesions. White matter hyperintensities (WMHs) seen on MRI have been highly associated with hypertension, as well as cardiac disease and smoking. WMHs have also been found more commonly in late-life depression and have been considered to be part of its pathogenesis. The vascular depression hypothesis proposes that cerebrovascular disease predisposes, precipitates, and perpetuates a late-life depression syndrome (Tennen et al. 2011).

The researcher was less competed and compared among the findings. Different tool were used in the research. Model of associated factor, risk factor

and predictor were various in variables. The researcher also may feel reluctant to speak to survivors in what are often miserable and difficult circumstances.

Loss of body functional caused the loss and misery in stroke survivor. General Adaptation Syndrome (GAS) theory, adaptation alteration during stress caused the vulnerability and immune depression (Upton 2010) (Selye, 1956). Maladaptive coping related with poor quality of live in stroke survivor after 5 months onset (Darlington, Dippel, and Ribbers 2007). Depression is the result of stress. Maladaptive coping caused depression (Upton 2010). Meanwhile stress and coping as a process of depression, it needed to be investigated.

CONCLUSION

The associated factor and predictor should be assessed in early acute stage to detect the PSD. Meanwhile stress and coping as a process of depression, it needed to be investigated.

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