The Relationship of Stress and Self Esteem with Depression Among Malaysian Armed Forces Personnel

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Abstract. Depression within the military can have disastrous consequences. It can inhibit operational readiness and reduce the ability of the Malaysian Armed Forces (MAF) in defending Malaysia's sovereignty and protecting its national interests. Depression resulting from poor mental health could affect non-attendance of employees, reduced work output, loss of income, and other poor physical and mental health ailments. The purpose of the study is to examine the relationship of stress and self-esteem with depression among the Malaysian Armed Forces personnel. A quantitative approach using a cross sectional design that provided results of the relationships of the domains involved were used. It involved a sampling size of 400 respondents. The stress, self-esteem and depression were determined using survey in the form of a questionnaire. This study found that there are significant positive relationships between the two domains with depression in the environment of the MAF (R^2=0.403). The domain of stress is more prominent than self-esteem in causing depression in the MAF. The outcome of this study can assist the MAF to plan strategic prevention and intervention to address the problem directly in the working environment and use it as a basis to formulate mental health programs and policies within the MAF.

Keywords: Depression, Stress, Self-esteem, Mental.

INTRODUCTION

Depression within the military can have disastrous consequences as it can be an important impediment to operational readiness and retard the ability of the Malaysian Armed Forces (MAF) to defend the nation and protect her sovereignty. It can lead to reduced work output, non-attendance, poor physical and mental health ailments. Depression is one of the outcomes of poor mental health. Depression is diagnosed when a person is in a depressed state of mind, or when they lose concentration or interest in most tasks. It is often equated with stress and lack of self-esteem exhibited by the person

who is in depression. The assumption becomes stronger when there are presence of symptoms such as loss of appetite or weight, sleep problems, feelings of worthlessness, unexplained fatigue, inability to concentrate or make decisions, psychomotor difficulties or suicidal ideation (APA, 2020a).

Thus, this reserach looks into the relationships between stress and self-esteem with depression among the Malaysian Armed Forces personnel. First, this paper establishes the conceptualising and operationalising the domain of depression. Then, it surveys the prevalence of stress and self-esteem leading to depression in the MAF. After which, it highlights the methods of research used for the study. It then dwells on the findings and discussion of the data collected. Finally, the paper ends with the conclusion and recommendation for further research. The outcome of this research could assist the MAF to plan strategic prevention and intervention to address the problem directly in the working environment and be used as a basis to formulate mental health programs and policies within the MAF.

THEORIES UNDERPINNING DEPRESSION

Depression is one of the causes of morbidity. A quarter million people are estimated to be suffering from some form of depression in the world (WHO, 2020). In the Western Pacific region alone, it is estimated that about 5.73% of the total population undergo depression (WHO, 2017). In Malaysia, according to a study conducted in year 2019, depression affects 2.3% of Malaysian population (IPH, 2019). There were studies done on the prevalence of depression in the military environment. The outcomes of the studies differ from one country to another. For example, in Thailand, a cross-sectional study among Thailand Army personnel showed the prevalence of depression was 10.75% (Rukskul, Leelahanaj, Hirunviwatgul, & Pholboonyaruk, 2009). Meanwhile in the United States (US) the occurrence of depression among actively serving military personnel in 2015 was 9.4% (Meadows et al., 2018).

Depression as one of the outcomes of poor mental health could lead to reduced work output, non-attendance, loss of income, and other poor physical and mental health ailments. On a worst-case scenario, it can even lead to suicidal tendencies if ignored or not effectively treated. Ultimately, this will result in an organisation which is unable to perform optimally. Consequently, the organisation will be unable to carry out its functions effectively (Martins & Lopes, 2012). The resulting health burden due to depression will also increase the burden of health economy as well (WHO, 2015).

Depressed individuals often have imbalance with regards to endocrine (hormone), immune, and neurotransmitter (norepinephrine, serotonin, and dopamine) system functioning as depicted in **Figure 1**. An imbalance of this biology chemical can lead to depression. A person who is depressed is possibility susceptible to other physical problems. Similarly, a person who has physical complaints is also more likely to go into depression (WHO, 2020). It is also proven that depression can be genetically passed on from one generation to another (Weissman et al., 2016). Psychological factors associated with depression includes negative patterns of thinking, restrictions in coping skills,

issues of judgment, and decreased emotional intelligence (the ability to observe, comprehend, and express sentiments) (APA, 2020b). To a certain degree, these psychological aspects can be influenced by biology (disposition and character), and by social factors such as what coping mechanism exhibited by people around (family and teachers) as they are growing up (Engel, 1980).

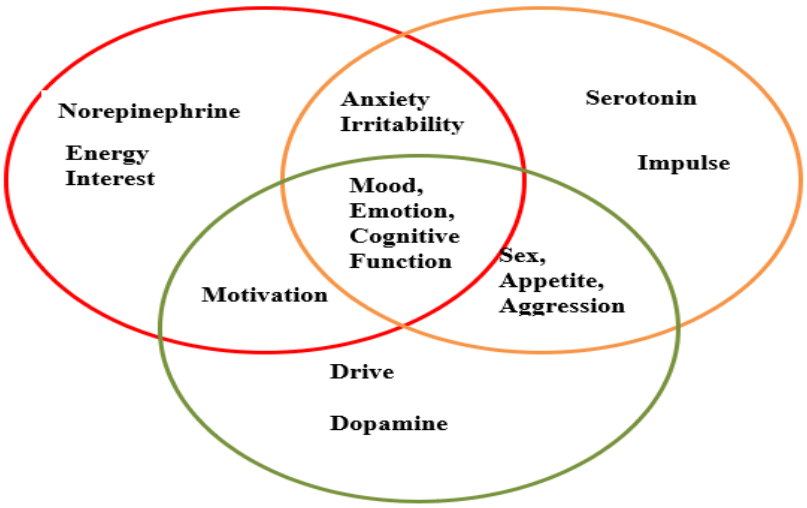

Figure 1 - Causes of depressive symptoms
Source: Neurobiology of Depression (Sadek & Nemeroff, 2020)

The MAF working environment is unique and is different compared to many other countries. It is not directly involved in armed conflicts now as that of earlier days in the 1960s and 1970s when the country was facing the Communist Insurgency threat. Today, the MAF participates in operations such as defending the Nation's land borders, coast and airspace as well as assisting other agencies and civil authorities in humanitarian assistance and disaster relief operations. Additionally, the MAF is also involved in Peacekeeping Operations internationally under the flagship of the United Nations. In spite of not being involved in armed conflicts and war, the MAF personnel are still exposed to environments with psycho-social challenges created by multiple factors. Often, as in other militaries in the world, the MAF faces challenging, overwhelming responsibilities, obligations, and sacrifices (Singh, Liaw, & Mohaiyadin, 2018). These unique working environments of the military demands sound mental health status of its personnel in order to carry out his or her duties efficiently.

Data from the MAF hospital outpatient clinic reports showed that there were 1.4% mental health disorder cases among the MAF personnel reported in 2013. Subsequently there was a gradual increase of mental health cases over the years and ultimately in the year 2020, mental health cases rose to 2.3% (BPK, 2020). Thus, depression is a leading cause of morbidity. Surge in the occurrence of depression within the military can have disastrous consequences as it can be an important impediment to operational readiness and retard the ability of MAF to perform its operational duties.

CONCEPTUALIZING AND OPERATIONALIZING THE MEASURE OF DEPRESSION

Depression is complex and often interrelated with many other factors such as biological, psychological and social factors including lifestyle (APA, 2020b). Baqutayan (2015) pointed out that factors such as low self-esteem, negative stress coping mechanism, cognitive immaturity can be a risk to mental health which could lead to depression. Another cross-sectional study conducted by Kader Maideen et al., in 2014 in the state of Selangor among a group of 1460 adults showed the existence of depression was at 10.3% (Kader Maideen et al., 2014). Also, a study by Aris et al., in 2008 in a Primary Care setting in Kuantan among a group of 452 patients, showed that depression existed at 10.6% (Aris, Halim, & Musa, 2014). Both studies used the Patient Health Questionnaire - 9 (PHQ-9) as the tool to determine the level of depression. As for military personnel, the Health-Related Behaviours Survey (HRBS) which is conducted by the United States (U.S) Department of Defense in the year 2015 showed that in a group of U.S Service Members who are Active-Duty, 9.4 % (CI: 8.4–10.5) of service members stated probable depression (i.e., had PHQ-9 scores of 15 or above) a figure higher than was estimated, in the previous year, which stood at 6 % of U.S. adults (Meadows et al., 2018). In Malaysia, data from the Malaysian Armed Forces (MAF) hospital outpatient clinic report showed that there were 0.14 % mental health disorders reported among total disease reported by the MAF personnel in 2015 (BPK, 2015) and 0.23% in (BPK, 2020).

Based on the reviewed literature, depression is mainly caused by stress and self-esteem factors in an organisation/military unit. Thus, the conceptualisation of the measure of depression is based on these the two domains of depression. Each domain comprises of other dimensions from which the measurement of depression can be constructed. These dimensions are considered as prime components in determining depression. Hence, for this research, the dependent variable is the 'depression'. Where else the independent variables are parameters involving the domains of stress and self-esteem that contribute to depression. The model for depression is conceptualized as an integrated model of a linear relationship between the dependent variable (depression) and the independent variables (stress and self-esteem). The conceptual framework for this study is as shown in **Figure 2**.

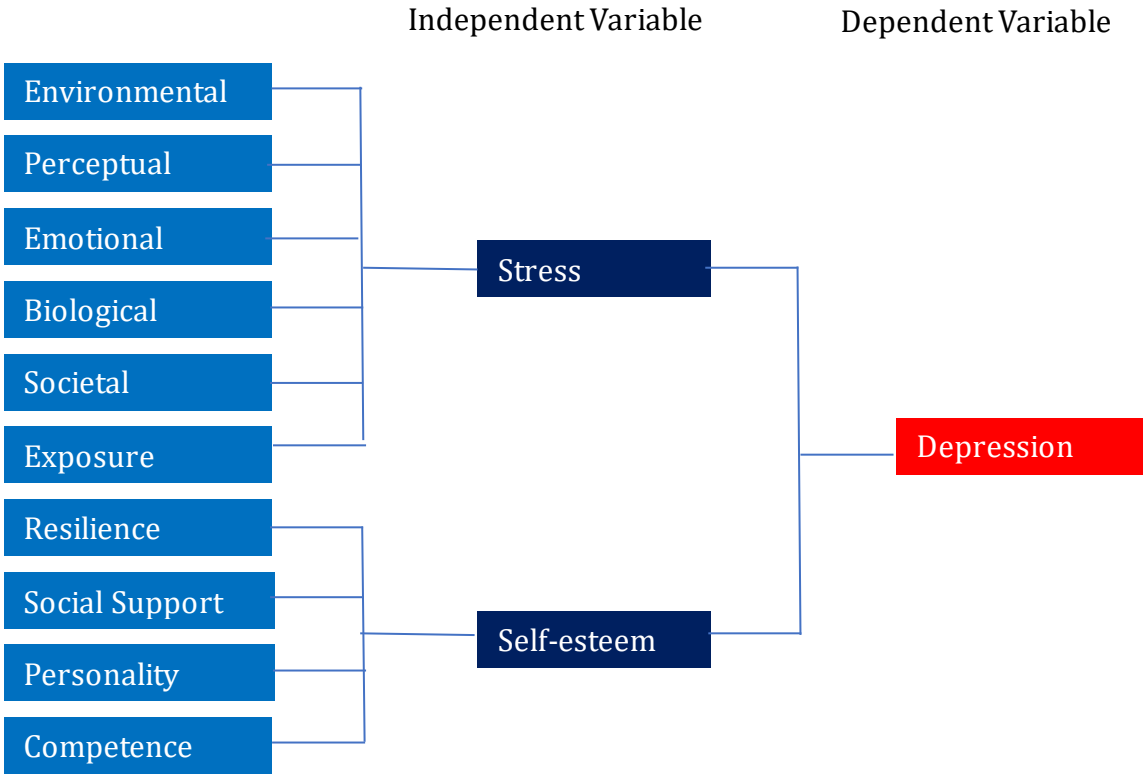

Figure 2 – The Conceptual Model of Depression

Depression

Depression is not just a normal mood changes and short-term emotional reactions to challenges daily. It may escalate into a more serious health condition if left untreated. Depression can cause great suffering and impair work function and family relations. Worst, it can even lead to suicide for those who are who are unable to cope up with the depression. Incidentally, the World Health Organization (WHO) report states that almost 800,000 people committed suicide every year (WHO, 2020). This depression mechanism can be explained using the biopsychosocial model (Engel, 1980). Dr George Engel a cardiologist, was the first to develop the biopsychosocial model. This model advocates that the biological, psychological, and social factors are all interconnected. The body and the mind are not separate entities but are interconnected and interdependent. Biological factors which show significant association with depression are such as age, ethnicity and sex (IPH, 2019), family history of psychiatric illnesses and existence of chronic disease (Kader Maideen, Sidik, Rampal, & Mukhtar, 2014). Additionally, psychological factors can also contribute to individual behaviour on how to cope with stressful conditions (WHO, 2020). Factors such as stress, low self-esteem, negative coping mechanism, cognitive immaturity can be a risk to mental health which could also lead to depression (Baqutayan, 2015). Wellness or illness is concerned with the physical state as well as psychological and social status (Borrell-Carrió, Suchman, & Epstein, 2004). To a certain degree, these psychological aspects can be influenced by biology (disposition and character), and by social factors such as what coping mechanism exhibited by people around (family and teachers) as they are growing up (Engel, 1980). Thus, depression is operationalised using the domains of stress and self-esteem.

Stress

Cohen et al. (2016) said that stress is a term indicating experiences in which the environmental demands of a situation prevail over the perceived psychological and physiological ability of the individual in coping with it effectively. Professionals and scientists measure stress using different methods such as through stress response. Stress response prepares the body for action and triggers changes to survive an intense situation. The response involves the activation of the sympathetic nervous system and the hypothalamic–pituitary–adrenal axis (HPA axis). It causes a release of stress hormones, such as adrenaline and cortisol. These physical reactions serve as indicators of stress which can be measured by monitoring heart rate variability, breath frequency and blood pressure. In the studies of physical and mental health, stress has been operationalised in different ways which relate to the different definitions of stress to attain the construct validity of stress measures. Lobel and Dunkel-Schetter (2007) concluded that multidimensional models of stress are theoretically justified and enhanced stress measurement in identifying health effects of stress. The studies used environmental, perceptual, and emotional as the three components for the measures for stress.

Epidemiological studies consistently demonstrate associations between high work stress and worse physical and mental health. One of the most widely studied models of work stress is job strain, which is a combination of high demands (workload and intensity) and low control (Karasek, 1979). Decades of research has linked high job strain to anxiety and depression, increased blood pressure (BP), cardiovascular events, and metabolic syndrome (Chandola et al., 2006; Landsbergis et al., 2013; Madsen et al., 2017; Nyberg et al., 2013). An analysis of the Whitehall II study cohort found that chronic work stress was associated with coronary heart disease (CHD) risk, with the associations strongest in participants under 50 (RR = 1.68, 95% CI 1.17–2.42). Other components of work stress, such as effort-reward imbalance, also predict cardiovascular disease risk (Dragano et al., 2017). Similarly, societal issues such as a lack of social support, or harassment, early separation or other similar traumatic situational experiences can also lead to depression (Engel, 1980). Social factors can serve as a trigger that can cause changes in brain functioning. Other social determinants related to mental illness and depression are family support and working environment (WHO, 2014). Pertinently, psychological and social factors are interdependent in many ways. Poor social support can influence the psychology of an individual and activate the stress pathway in the brain which will cause disturb the balance in the neurotransmitter within the brain (Yang et al., 2015).

Self-esteem

Self-esteem, another important domain that cause depression, is defined as “a certain attitude and a perception of one's self” that affects interactions and feelings towards oneself and others (Mruk, 2006). A study by Yoobin et al.(2019) on the relationship between levels of self-esteem and the development of depression reported

that development of depression is associated with the levels of self-esteem. Their results recommend that early intervention for depression should focus on improving their levels of resilience, social support and positive domains of personality. Based on the reviewed literature, relationship between self-esteem and depression can be operationalised through the dimensions of resilience, social support, personality and competence.

The Rosenberg Self-Esteem Scale (RSES) is one of the instruments to assess self-esteem through a 10-item self-reported questionnaire. The questions focus on how participants feel about the self by measuring both positively and negatively formulated items, with high scores indicating higher self-esteem. In turn, resilience is assessed and measured by the ability to cope with emotions, solve problems, and gain social support. It uses the RAS which has 3 types of positive self-appraisals, including emotion coping appraisals, situation coping appraisals, and social support appraisals. It has a 12-item self-reported questionnaire with a 5-point scale. The questions are about participants' emotional control and their relationships with friends and family. As for social support, it involves the interaction of personnel in their surrounding and communities consisting of emotional, informational, and material support, and evaluation of such support. The Social Support Scale is a tool to measure perceptions of social support and satisfaction with interpersonal relationship. It uses 25-item self-reported questionnaire rated by a five-point scale. Finally for personality, the interpersonal, motivational, and emotional styles of both adults and adolescents; personality is assessed by the NEO-personality inventory (NEO-PI) which provide a description of personality traits using a 60-item self-reported questionnaire with a 5-point scale.

Operationalising the Domains of Depression

The identified domains of stress and self-esteem were operationalised by using the ten identified dimensions of stress and self-esteem as shown in **Table 1**. Based on this operationalisation, items were constructed for the survey questionnaire of the ten identified dimensions for the instrument to survey depression.

Table 1 - Descriptions of the domains of Depression

Domain	Dimension	Description
Stress	Environmental	Environmental contexts interact to influence the psychological and physiological stress response. Situation of events or trauma affecting the cognitive, socio-emotional, and behavioural outcomes leading to stress (Epel et al., 2018).
	Perceptual	It is a measure of the degree to which situations in one's life are appraised as stressful. The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives.
	Emotional	The emotions that interfere with ability to do the things leading to stress that has become unhealthy.
	Biological	Stress-induced changes due to biological pathways linking stress to

Domain	Dimension	Description
		cardiovascular disease pointing to stress-related alterations in the immune, autonomic, and neuroendocrine systems. Family history of mental and chronic illness contribute toward biological factor.
	Societal	Social support, or harassment, early separation or other similar traumatic situational experiences that lead to depression.
	Exposure	Stressor exposure is the developmental or life stage during which the stressor occurs. Stressor exposures can be measured with self-report questionnaires such as a life events checklist, assessed by an interviewer, or objectively determined based on proximity to an event.
Self-esteem	Resilience	Resilience is assessed and measured by the ability to cope with emotions, solve problems, and gain social support. It uses the RAS which has 3 types of positive self-appraisals, including emotion coping appraisals, situation coping appraisals, and social support appraisals. The questions are about participants' emotional control and their relationships with friends and family.
	Social Support	The interaction of personnel in their surrounding and communities consisting of emotional, informational, and material support, and evaluation of such support. The Social Support Scale is a tool to measure perceptions of social support and satisfaction with interpersonal relationship.
	Personality	The interpersonal, motivational, and emotional styles of both adults and adolescents. Personality is assessed by the NEO-personality inventory (NEO-PI) which provide a description of personality traits.
	Competence	Competence relates to motivation of a person in facing challenges that are able to be met. Success results in a feeling of efficacy and pride that promotes self-esteem.

METHODS

This research involved modelling the theorised relationships among the hypothetical constructs depicted in the earlier outlined conceptual framework. The quantitative design used non-experimental correlation comprising of the multiple regression and Partial Least Square Structural Equation Modelling (PLS - SEM) techniques. The variables of stress, self-esteem and depression were used to obtain correlational statistics to describe and measure the degree of association and their relationships. It adopted a model which incorporate causal paths and the identification of the collective contribution of the two variables (stress and self-esteem) in measuring depression in the MAF. The survey research involved cross-sectional studies using a questionnaire for data collection for the formulation of a model to measure depression. It opted for the use of Smart-PLS 3.0 program as the statistical methodology which takes a hypothesis-testing approach to the analysis of the structural theory bearing on the measure of depression. It was carried out in the Military Medicine Department (MMD) of Hospital Angkatan Tentera Tuanku Mizan (HATTM), Kuala Lumpur, Malaysia which is

the centre for compulsory medical check-up for serviceman in all the three services of the MAF. The target population of the survey were the personnel of the MAF with a sample size of n=400. The measuring instrument collected data for the variables in this study namely stress, self-esteem and depression. The full set of questionnaire consists of 5 sections. The first section, Section A, listed the socio-demographic information (age, gender, ethnicity, education level service, rank, marital status, residential status, and total household income) and biological factors (family history of mental illness and chronic illness). The second section, Section B, consisted of questions pertaining to behavioural characteristics comprising of smoking, alcohol consumption, illicit drug usage, quality of sleep, and physical activity. The third section, Section C, measured stress level. It is measured using the validated version of the ten-items perceived stress scale (PSS-10) which is one of the more popular tools for measuring psychological stress (Cohen, Kamarck, & Mermelstein, 1983). The fourth section, Section D, dwelled on self-esteem. It is measured using the validated version of the ten-item Rosenberg Self-esteem Scale (RSES- 10) which is one of the most popular instruments to measure self-esteem worldwide (García, Y Olmos, Matheu, & Carreño, 2019). Finally, the last section, Section E, measured depression.

RESULTS AND DISCUSSION

The hypothesised relationships among the constructs of stress and self-esteem with depression were obtained by running the PLS-SEM algorithm in obtaining the estimates for the structural relationships (i.e. path coefficients). The results of the PLS-SEM algorithm are as presented in **Figure 3**.

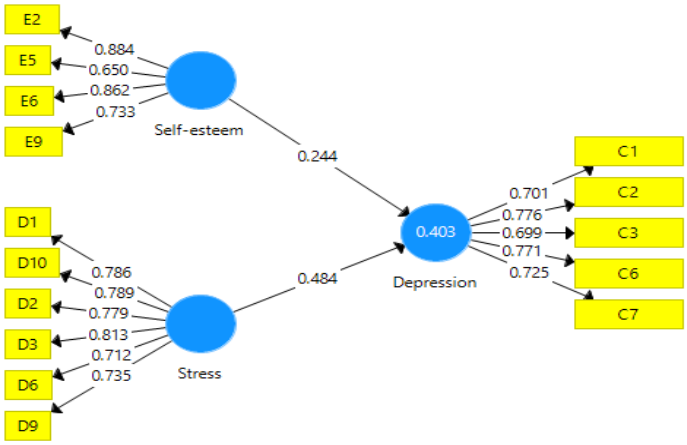

Figure 3 - PLS-SEM algorithm for structural model of Depression

The estimated path coefficients, β, obtained indicate standardised values between -1 and +1 representing negative and positive relationships. The results of the path coefficients indicate that stress (β = 0.484) and self-esteem (β = 0.244) have positive relationships with depression. Hair et al. (2014) pointed out that values that are

close to +1 or -1 are almost always statistically significant. On the other hand, very low values close to 0 are usually non-significant (not significantly different from zero). The ultimate test to determine the significance of the coefficients was conducted by means of bootstrapping. The results of the bootstrapping are indicated in **Figure 4**.

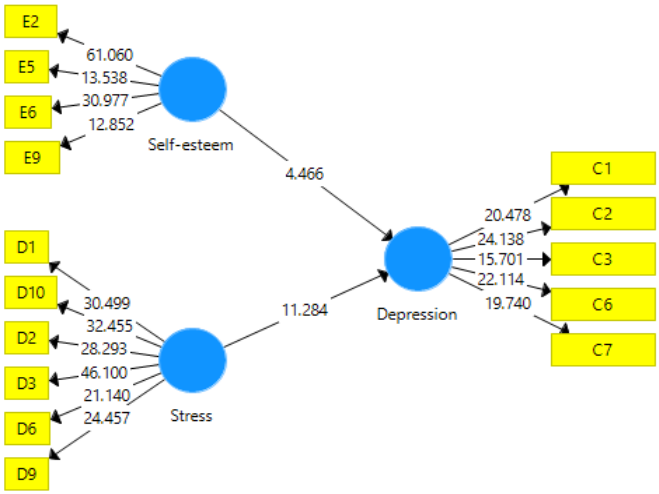

Figure 4 - Bootstrapping results of the structural model of depression

Hair et al. (2014) said bootstrapping provides the standard errors and compute the empirical *t* values that determine whether the coefficients are significant. The coefficient is significant at a certain error probability (significance level) if the empirical t value is larger than the critical level (1.96 for significance level of 5%). Based on this criterion, the truncated results in **Table 2** indicate that the relationships between stress with depression and self-esteem with depression are significant at a level of 5% probability of error as all the t values are >1.96 threshold value. Amongst the three predictive constructs, stress (β = 0.484) has better effect in predicting depression compared to self-esteem (β = 0.244).

Table 2 – Significance testing results of the structural model path coefficients

	Path Coefficients	***t* Values (>1.96)**	***P* Values**	**95% Confidence Intervals**	**Significance (*p*<0.05)?**
Stress -> Depression	0.484	11.284	0	[0.385, 0.556]	Yes
Self-esteem -> Depression	0.244	4.466	0	[0.14, 0.346]	Yes

The PLS-SEM algorithm default report on **total effects** presented in **Table 3** below show the findings that stress (0.474) has the strongest total effects on depression compared to self-esteem on depression (0.244).

Table 3- Results of total effects on depression

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Stress -> Depression	0.484	0.489	0.044	11.284	0
Self-esteem -> Depression	0.244	0.245	0.055	4.466	0

The coefficient of determination (R^2 value) was used to measure the depression's predictive accuracy. This predictive accuracy was calculated based on the squared correlation between the specific depression construct's actual and predicted values. The coefficient represents the exogenous latent variables' (stress and self-esteem) combined effects on the endogenous latent variable (depression). However, Hair et al. (2014) pointed out that there are no rules of thumbs for acceptable R^2 values which depend on the model complexity and the research discipline. Nevertheless, R^2 value ranges from 0 to 1 with higher levels indicating higher level of predictive accuracy. The R^2 value of 0.403 of depression indicates that 40.3% of depression is predicted by the constructs of stress and self-esteem variables.

The f2 effect size is a measure that is used to assess the relative impact of a predictor construct on an endogenous construct. The f2 effect size was used in assessing the exogenous constructs' (stress and self-esteem) contribution to the endogenous latent variable's (depression) R^2 value. In the path model of depression, the results show that the exogenous variables (stress and self-esteem) for explaining the endogenous variable (depression) have f^2 effect sizes of 0.299 and 0.077 respectively. Hence, the values of effect size indicate stress has a greater impact on depression followed by self-esteem. Based on Cohen (1988) f^2, the values of 0.02, 0.15 and 0.35 representing small, medium and large effects respectively. Therefore, stress (f^2 = 0.299) has a medium effect in measuring depression. Similarly, self-esteem (f^2 = 0.077) has a small effect on the depression variable. Hence, the f^2 effect size of stress is greater that self-esteem. Thus, stress stood out among the two dimensions in its importance in measuring depression. The summary of f^2 effect of the depression model is as shown in Error! Reference source not found.**4**.

Table 4 - f^2 effect size

Variable/ Construct	Depression		
	Path Coefficient	f^2 effect size	Remark
Stress	0.473	0.299	Medium effect
Self-esteem	0.597	0.077	Small effect

The Stone-Geisser's Q2 value (Geiser, 1974; Stone, 1974) was used to examine the predictive relevance of the depression model. In the path models of depression, the Q^2 *included* value is 0.455. The Q^2 $_{\text{excluded stress}}$ value is 0.115 and the Q^2 $_{\text{excluded self-esteem}}$ value is 0.187. The exogenous variables (stress and self-esteem) for predicting the endogenous

variable (depression) have q^2 predictive relevance effect sizes of 0.120 and 0.030 respectively. Hence, the values of predictive relevance indicate stress has a greater predictive relevance on depression followed by self-esteem. Based on Hair *et al.* (2014), q^2 effect size values of 0.02, 0.15 and 0.35 representing small, medium and large predictive relevance respectively. Hence, stress (q^2 = 0.120) has a small to medium predictive relevance and self-esteem (q^2 = 0.0.030) has small predictive relevance in measuring depression. Stress (q^2 = 0.120) stand out among the two dimensions in its predictive relevance of depression. The summary of q^2 effect size values of the depression model is as shown in **Table 5**.

Table 5 - q^2 predictive relevance effect

Variable/ Construct	Depression	
	q^2 effect size	Remark
Stress	0.120	Small to Medium predictive relevance
Self-esteem	0.030	Small predictive relevance

The importance-performance matrix analysis (IPMA) was used to extend the results of PLS-SEM by taking the performance of each construct to draw conclusions on its performance and the relative importance of constructs in explaining other constructs in the structural model. Based on the output of the IPMA, the relative importance and performance of the different constructs on depression is summarized in **Table** .

Table 6 - Relative importance and performance of different constructs on depression model

	Importance (Total Effects)	Performance (Index Values)
Stress	0.484	23.067
Self-esteem	0.244	13.955

The data above allow for the creation of an IPMA representation of depression in the form of a graph as shown in Error! Reference source not found.. The IPMA of depression reveals that the stress construct is of primary importance for establishing depression. The self-esteem construct is slightly lower than the construct of stress. It can be seen from the graph that both the two constructs of stress and self-esteem show almost equal performance (Y-axis – Performance) in their contribution towards depression at about 20 percent in the scale. However, the IPMA of the depression model provides additional information that though stress and self-esteem provide an almost equal performance towards depression in the MAF, the effects of the two constructs differ as seen in their coordinates along the X axis (Importance – Effect). The effect from stress is more profound (right hand side of the values in the X-axis) as compared to self-esteem (slightly above the middle values in the X-axis) in the MAF. Therefore, as reflected in Error! Reference source not found.**5**, there is a need for the MAF to manage the performance of the stress factor/measures and self-esteem domains to overcome depression. At the same time, efforts to improve the effect of self-esteem

factor/measures have to be made by emphasising its greater importance in order to have similar effect with that of stress so as to improve the overall efforts in managing depression in the MAF.

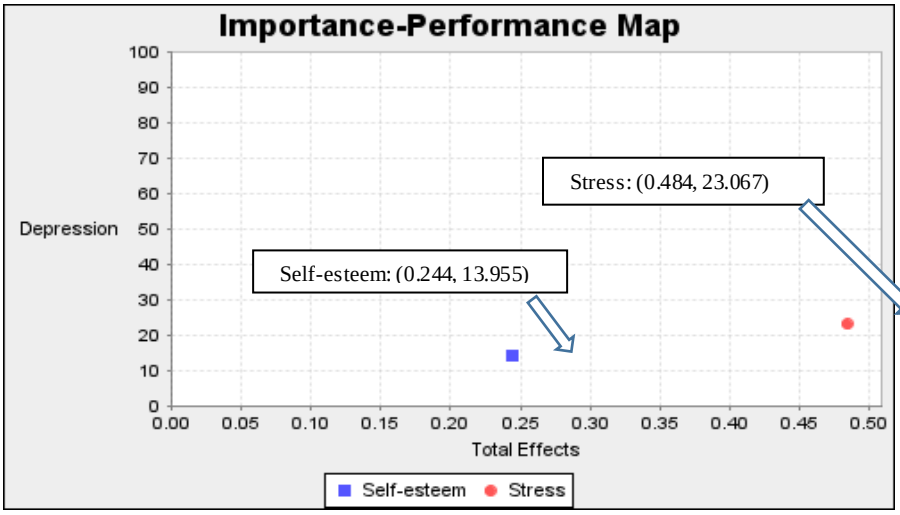

Figure 5 - Graphical IPMA representation of depression model

CONCLUSION

This research was done with the aim of determining the relationships of stress and self-esteem with depression in the MAF by identifying the contributory factors and ultimately to assist the MAF in planning strategic prevention and intervention to address problems directly concerning mental health. The outcome of this research can serve as a basis to formulate policies and mental health programs within the MAF. The study has identified stress and self-esteem as the factors associated with depression among MAF personnel. Although this study reported that there were no alarming number of cases of depression among the MAF personnel (2%), the MAF should not neglect and ignore the need to address depression. Servicemen are front liners in the defence of the country. In order to perform their duties and responsibilities efficiently, they must be physically and mentally fit without any compromise.

The MAF's Psychology Cell carries out various activities in an effort to enhance mental health awareness. These activities are namely, individual and group counselling on a need basis, seminars and workshops on mental health, psychology profiling on MAF personnel, psychology as well as counselling-based research and conferences. Psychological profiling is conducted during enlistment to ascertain one's mental health status. Nevertheless, emphasis has also to be given throughout the service of the military personnel. As identified in the study, servicemen undergo many challenges and stresses that can lead to a situation of depression in the course of his duty. The absence of

random or periodic preventive strategies can ultimately lead to mental health problems. The MAF is fully concern on the importance of mental health screening and treatment of servicemen. There are methods, procedures and processes in place to address the mental health issues. However, the MAF has to dwell in depth on the challenges faced to effectively treat mental health issues. For example, programmes on stress awareness and its effect on one's mental health must permeate among the MAF personnel at all levels of the organisation. All the personnel should be able to identify the symptoms and mitigate the consequences of depression through the availability of help. The MAF could augment the number of qualified Counsellors and Clinical Psychologist in Armed Forces Hospitals to perform their important role in intervention and management of mental health issues particularly on stress and depression. Thus, the MAF the strategies and plans available must be able to cope up with future challenges and the way forward in overcoming issues of mental health involving depression. More so during the current challenges pose by Covid-19 pandemic which affect the nation and the MAF personnel.

In this study, stress was found to be significantly associated with depression among MAF personnel. Thus, it is pertinent to have screening tool established for the use of the MAF population whereby the personnel could understand the questionnaire better. The study was able to establish the causal relationship between the domains of stress and self-esteem with depression. However, the research was a cross sectional study whereby the findings relate to a particular point of time. Nevertheless, the results could serve well as guide or reference for future studies. As there are other reasons that could cause stress and depression, further study could examine the causes of stress among the MAF personnel. Thus, the MAF would be able to enhance precise preventive and intervention strategies based on the findings. As access to medical-in-confidence data is important for effective research, it will be beneficial if MAF is able to have a centrally held data on depression among the MAF personnel for easy access to facilitate future research studies on mental health issues in the MAF. Based on the findings of this study, replication studies can also be carried out in future using a different set of sampling to ascertain and concur with the findings of this study.

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