

Occupational Burden of Schizophrenia in Malaysian Armed Forces

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ABSTRACT

Introduction: Schizophrenia is a chronic, relapsing and disabling brain disorder. Despite lower prevalence as compared to other psychiatric disorders, schizophrenia is highly debilitating; mainly attributed to premature attrition. This study aimed to improve the understanding of schizophrenia among Malaysian Armed Forces (MAF), the occupational burden of this debilitating illness, involuntary separation and invalidity. **Methods:** This study is a retrospective review of cases subjected to medical board evaluation (MBE) and psychiatric administration board evaluation (LP3) from the years 2007 to 2017 as documented in early 2018. **Results:** A total of 227 personnel with schizophrenia were subjected to MBE and LP3. Of the total, 92.1% were invalidated out. **Conclusion:** This study highlights higher incidence rate of schizophrenia among MAF compared to the general population. The attrition rate among personnel with schizophrenia eludes to the psychosocial and occupational burden of schizophrenia in MAF. More resources should be allocated to improve the detection of schizophrenia among recruits and cadets to reduce the burden.

KEYWORDS: Schizophrenia, Malaysia Armed Forces, Medical Board Evaluation, Occupational Burden

INTRODUCTION

Schizophrenia is a chronic, relapsing and disabling brain disorder that affects about 7.7 to 43/100,000 worldwide ¹ and 5/100 000 Malaysian². Each year 5 in 100 000 adults (12 to 60 years of age) develop schizophrenia. The illness is characterized by two groups of symptoms; positive symptoms (thought disorder, hallucinations, delusions, and paranoia) and negative symptoms (impairment in emotional range, energy, and enjoyment of activities). Formal diagnosis requires persistent symptoms for at least one month and usually result in severe impairment in a job and/or social functioning ³. The common presentations include abnormal behaviour, slowness of movement and speech, difficulty in expressing emotion, and problems with cognitive function.

Symptom onset is insidious, often begins in late adolescence and progresses until symptoms become severe enough to require medical attention. The earlier age of onset is associated with greater morbidity. With the current availability of antipsychotic,

complete remission is promising; which is higher for those presented with the first episode as compared to those with multiple episodes (17% to 78%) vs (16% to 62%) ⁴. Studies comparing second-generation antipsychotics versus haloperidol showed higher remission rates for the former.

In men, symptoms usually start in their late teens and early 20s. For women, symptoms usually start relatively late in their mid-20s to early 30s. Presently, no single etiological factors are found. Multifactorial underlying aetiologies including genetic makeup, brain chemistry and psychosocial factors probably play a role.

An individual cannot enrol into the MAF service with the illness of schizophrenia. However, common than not, the illness appeared during the service for several reasons – young adults often begin the military service at an age when schizophrenia symptoms begin to manifest (late teens and early 20s); military work structure; physically and mentally tough recruit training may trigger the first psychotic episode. Some young soldiers experience their prodromal and early manifestations of schizophrenia before enlistment. The prodromal period varies from days to years in some individual. Schizophrenia often goes undetected clinically until during or after basic training.

While there is no cure for the condition, medications namely antipsychotic can ameliorate the symptoms and prevent future relapses of symptoms making complete remission and recovery attainable. Studies reported a broad range of recovery rate of schizophrenia from 11-53% depending on criteria used to defined recovery⁵⁻⁸. Despite some discrepancies, most of the studies defined recovery as complete recovery (loss of psychotic symptoms and return to a pre-illness level of functioning) or social recovery (economic and residential independence and low social disruption).

With each relapse of a psychotic episode, there is some declination of function and the chances of full recovery is lowered. Therefore early detection, early treatment and intervention including keeping them in a healthy social environment are crucial in managing personnel with schizophrenia so that the long-term prognosis of patients will improve. Otherwise, down drift into drug abuse, unemployment and homelessness are inevitable.

METHODOLOGY

All military personnel who underwent medical board and invalidated out of service with the diagnosis of Schizophrenia between Jan 2007 to Dec 2017 were included in the study.

Relevant data were collected from the Health Division of MAF⁹ records and psychiatric administration board evaluation reports (which is known as Lembaga Pengurusan Perubatan Psikiatri or LP3)¹⁰.

RESULT

Socio-demographic and military characteristic

The mean age of the subjects during the medical board commencement was 31.04 ± 6.33 years. The majority were Malay (94.7%), male (97.8%), the Army (71.4%) and non-commissioned officers (88.9%). The duration of service ranges from 1 to 42 years with a mean of 9.86 ± 7.07 years. The data on religion and marital status were not available.

Table 1: Sociodemographic and Military Characteristic of Schizophrenia Patient in MAF

Sociodemographic Variables		N (%)	Mean \pm SD
Age during MBE (years) : Min=17 ; Max=59			31.00 \pm 6.33
Gender	Male	221 (97.4)	
	Female	6 (2.6)	
Rank	Recruit and Cadet officer	8 (3.51)	
	Junior NCO (Cpl and below)	190 (83.7)	
	Senior NCO (Sjn and above)	12 (5.3)	
	Junior officer (Mej and below)	16 (7.0)	
	Senior officer (Lt Col and above)	1 (0.4)	
Source of information	MBE	191 (84.1)	
	LP3	36 (15.9)	
Service	Army	162 (71.4)	
	Navy	42 (18.5)	
	Airforce	23 (10.1)	
Race	Malay	215 (94.7)	
	Non-Malay	12 (5.3)	
Years of service : Min=1 ; Max = 42			9.82 \pm 7.07

Incidence and prevalence of schizophrenia in MAF

From 2007–2017, 227 military personnel were diagnosed to have schizophrenia, with a cumulative incidence of 1.7 per 1000 over 10 years. Each year, 17 in 100 000 MAF personnel suffered from schizophrenia. The incidence rate was $0.00017/\text{person-year} = 17$ per 100 000

The deployment status of personnel with schizophrenia

The majority (92.1%) were invalided or recommended to be invalided out from the service, 5.7% were downgraded to BE and 2.2 % were classified as LE based on MAF Medical Classification System¹¹. The average number of personnel who were invalided or recommended to be invalided out of service with the diagnosis of schizophrenia was 20.9 per year. Comparatively, the attrition rate is higher in male personnel as compared to female (92.8% vs 60.0%)

Table 2 : The Deployment Status of Personnel with Schizophrenia Diagnosis

PULHEEMS Employment Standard (PES)	N (%)
Forward Everywhere (FE)	0
Line Everywhere (LE)	5 (2.2)
Base Everywhere (BE)	13 (5.7)
Unfit for service (UNFIT)	209 (92.1)

MBE for personnel with schizophrenia

The highest number of personnel with schizophrenia undergone MBE was in 2015 (37 cases) followed by 2017 (34 cases) and 2014 (25 cases). The details are shown in Figure 1 and Table 3.

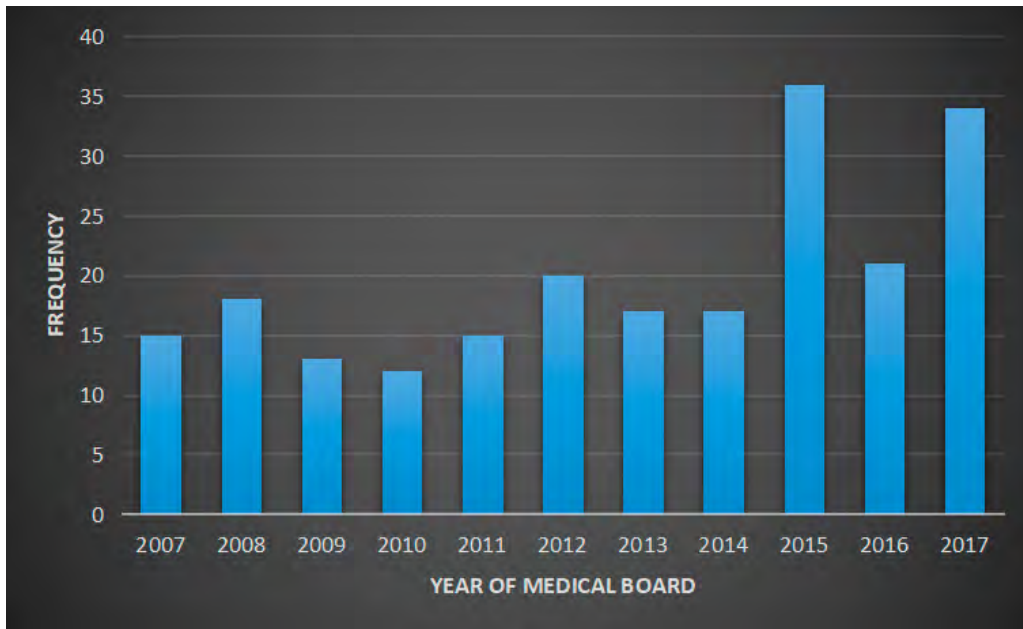


Figure 1: Medical Board Evaluation for Personnel with a Schizophrenia Diagnosis

Table 3 : The Number of Medical Boards Commenced Pertaining to Schizophrenia

Year of MB	LE	BE	UNFIT	Total of cases
2007	0	0	15 (100)	15
2008	0	0	18(100)	18
2009	0	1	12 (92.3)	13
2010	0	0	12(100)	12
2011	0	0	15(100)	15
2012	0	1	19 (95.0)	20
2013	2	1	14(82.4)	17
2014	1	4	12(70.6)	17
2015	2	4	31(86.1)	36
2016	0	1	20(95.2)	21
2017	0	1	33(97.0)	34

Schizophrenia and comorbidities

About 10.1% of personnel with schizophrenia were found to have other comorbidities. The commonest commodities were metabolic syndrome (39.1%) followed by trauma (30.4%), as shown in Table 4.

Table 4: Schizophrenia and Comorbidities

Comorbidities	N (%)
Nil	204 (89.8)
Substance use	3 (1.3)
Metabolic syndrome	9(4.0)
Trauma	7 (3.1)
Other medical illness	4 (1.8)

The clinical and occupational outcomes of personnel with schizophrenia

Complete remission was observed only in 2.2% of subjects. Table 5 shows the number and per cent of soldiers who left military service after being diagnosed with schizophrenia. More than two-thirds (70.1%) of soldiers diagnosed with schizophrenia as their primary diagnosis left military service within 1 year and 22.0% left within 2 years. The annual attrition rate ranged from 12 to 31 cases with an average of 21 cases per year.

The comparison between gender, military rank and service

It was noted that attrition rate is higher in male, officer rank and naval service as shown in Figure 2(a)-(c). All recruits and cadet officer with schizophrenia diagnosis were subjected to medical discharge.

Table 5: Occupational outcome of personnel with schizophrenia

Time Period After diagnosis	N (%)
Medical discharge within 1 year	159 (70.1)
Medical discharge within 2 years	50 (22.0)
Retained in service at 2-year follow-up evaluation	18 (7.9)

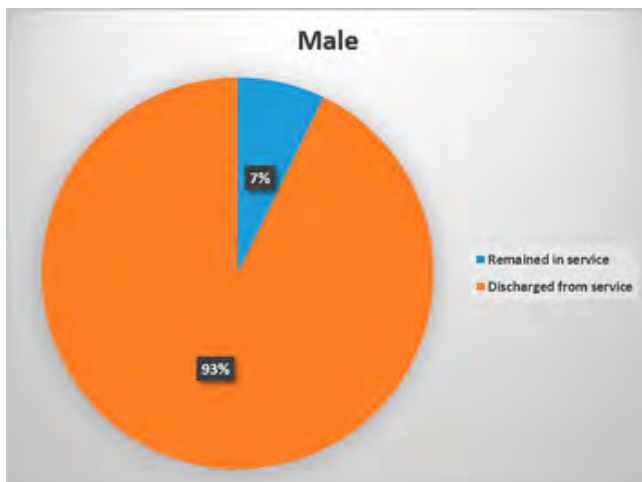


Figure 2(a) :Attrition Rate Based on Gender

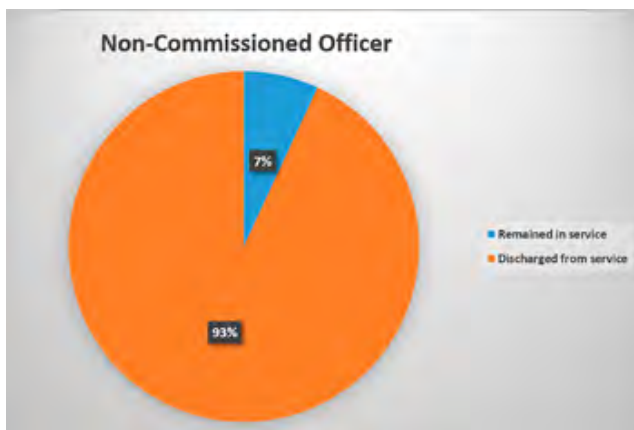
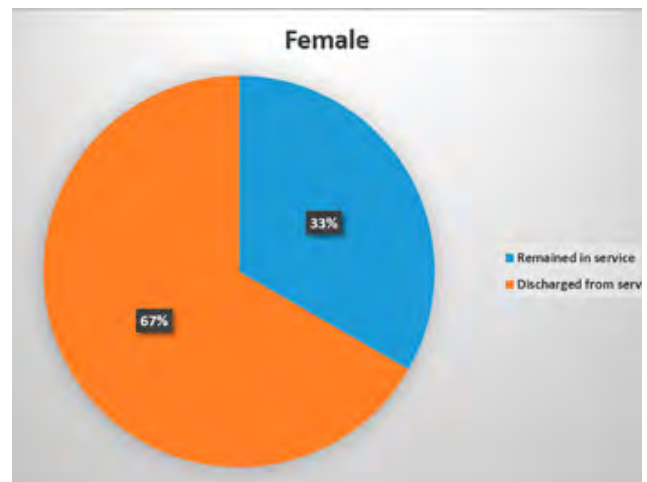


Figure 2(b): Attrition Rate Based on Military Rank



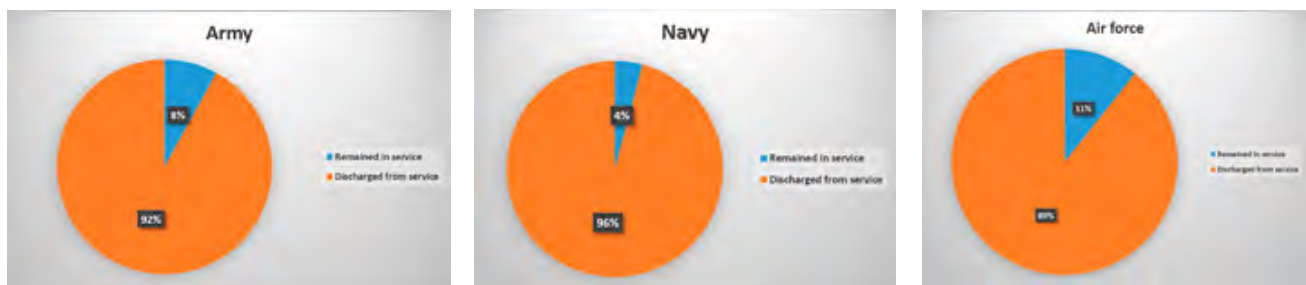


Figure 2(c): Attrition Rate Based on Branches of Military Service

Majority of personnel who retained in service were Malay, male, NCO rank from Army service. The analysis also showed that naval service, elder age, longer duration of service, and officer rank were associated with higher attrition rate. The characteristic of personnel retained in service 2 years after the diagnosis showed in Table 6.

Table 6 : The Characteristic of Personnel Retained in Service 2 Years After Schizophrenia Diagnosis (N= 18)

Sociodemographic Variables		(N= 18)	Mean \pm SD
Age during MBE (years) : Min=20 ; Max=35			29.67 \pm 3.53
Gender	Male	16 (88.9)	
	Female	2 (11.1)	
Rank	Junior NCO (Cpl and below)	15 (83.3)	
	Senior NCO (Sjn and above)	2 (11.1)	
	Junior officer (Mej and below)	1 (5.6)	
Service	Army	13 (72.2)	
	Navy	2 (11.1)	
	Airforce	3 (16.7)	
Race	Malay	18 (100.0)	
	Non-Malay	0	
Years of service : Min=1 ; Max = 10			4.56 \pm 2.31

DISCUSSION

In the past 10 years, 277 personnel were diagnosed with schizophrenia with a cumulative incidence of 1.7 per 1000 over 10 years. The incidence rate was 0.00017/person-year which means each year, 17 in 100 000 MAF personnel were diagnosed to have schizophrenia. This is higher than the general population (5 in 100 000 Malaysian)². This is possibly due to the fact that the military population is predominated by young man within the age of onset of schizophrenia. Therefore, the question of whether the incidence is simply higher among military population; or a failure of screening military recruits with prodromal or mild schizophrenia symptoms at enlistment or early in their training deserves a serious consideration.

Long term prognosis of these patients remained very poor as only 2.3% of patients achieved complete remission, whereas the majority (92.1%) has a severe impairment and invalided out of military service. This is lower compared to

8.2% in a study from the Indian subcontinent¹² after 20 years follow-up and 17% in another study at the end of 13 years¹³. Overall, only 6.6% showed adequate recovery based on symptoms improvement and ability to maintain satisfactory functioning which is much lower as compared to other studies. Approximately, 1 in 7 individuals with schizophrenia achieved recovery⁵. Two systematic reviews reported nearly 40% of patients with schizophrenia patients were considered as having good outcome^{6,7} and Warner (2014) reported that recovery rates was around 11%–53%⁸.

These data demonstrate the association between the diagnosis of schizophrenia and separation from the military. The majority (92.1%) were invalided or recommended to be invalided out from the service, 5.7% were downgraded to BE and 2.2 % were classified as LE. The average number of personnel who were invalided or recommended to be invalided out of service with the diagnosis of schizophrenia was 20.9 per year. The greatest risk of separation occurs within the year after the

onset of symptom. One possible interpretation of this is that participants who leave during that first 1 year represent those with more severe forms of the disorder, or probably longer DUP (duration of untreated illness). A previous study found that DUP among MAF were longer than the general population (average of 5 years vs 2.4 years)^{2,14}. This is supported by the finding that those who served longer were more likely to be discharged. These findings also suggest that those who have been seen and treated at the early stages of illness were more likely to remain in service. Unfortunately, neither symptom severity nor duration of untreated illness information was available to explore this question.

About 10.1% of personnel with schizophrenia were found to have other comorbidities. Among those comorbidities, the commonest were metabolic syndrome (39.1%) followed by trauma (30.4%). Metabolic syndrome is well known to be related to long term atypical antipsychotic use¹⁵⁻¹⁹. Some researches showed that diet and exercise at the initiation of those pharmacologic interventions may ameliorate some of the long-term morbidities of that kind of metabolic syndrome²⁰. Therefore, a psychiatrist should always monitor the metabolic parameters of their patients.

The diagnosis of schizophrenia within the combat troops results in the removal of members from their combat team. This lead to short-term and long-term problems for the military command and its mission, in addition to the career and lifetime quality of life changes for the soldier. Most often, this diagnosis ends the soldiers' military careers prematurely. Therefore, the psychosocial and economic burden to the MAF continues for the lifetime from the point of prodrome, treatment and service-associated disability payments. The burden includes medication cost, ward admission, transportation for a hospital visit, productivity loss for absenteeism (leave from work) and presenteeism (reduction of performance) and also from informal care, that is, family, commander, friends or unit members (escorts) for giving care to them. The longer the DUP, the more cost implicated due to productivity loss.

CONCLUSIONS AND RECOMMENDATIONS

High incidence, low recovery rate and low remission rate : Our incidence rate is much higher than general population (17 vs 5 per 100 000). We need to improve our ability to evaluate military recruits with prodromal or mild schizophrenia symptoms at enlistment or early in their training in order to limit military and personal disruptions during active duty and deployment. A more aggressive screening protocol for schizophrenia based on existing tests and technology is an urgent need for example collaborative effort with Ministry of Health (MOH) to have integrated schizophrenia registry. A more efficient screening process for schizophrenia would reduce the number of military recruits with nascent schizophrenia reaching active duty. Higher incidence of schizophrenia among active duty personnel reduces the MAF readiness. Effective screening not only reduce the number of recruits with schizophrenia reaching active duty but also provide early diagnosis and treatment for the individuals diagnosed with schizophrenia.

Substandard practice : Our current practice is reactive rather proactive. Only those with severe symptoms might seek help and are referred to psychiatrist for further evaluation which is not uncommonly too late, reflected by longer DUP in our population. There is no regular mental health check-up. There are areas that require prioritization in psychiatric services including proper psychiatric ward and training. Military medical officers should be exposed to psychiatric training during their housemanship. Primary care doctors at RSAT and PPAT should also be trained in psychiatry to reduce the number of undetected cases. Trained human resources are the most crucial asset for optimum mental health service health service.

Traditional mental health care system: At this point we are still adopting traditional mental health service where the main delivery of mental health care is hospital based. MOH has been implementing mental health service at primary care centers since more than 10 years ago. This approach was found to improve access to the mental health care system as compared to the traditional service delivery (hospital based). It provides access to specialist expertise as well as training to primary medical officers. Siti Nordiana 2017 found that outreach program increased the number of referrals, earlier referrals and subsequent lower attrition rate among personnel diagnosed with any psychiatric illness¹⁴. Early detection and treatment of schizophrenia is crucial. A study showed that nearly three-quarters of patients who had an intervention at the first episode of psychosis could achieve prolonged remission within one year of treatment²⁰. Early detection and treatment of schizophrenia is crucial. A study showed that nearly three-quarter of patients who intervened at first episode of psychosis could achieve persistent remission within one year of treatment²⁰. It is the time to change our approach toward better mental health care. Something is better than nothing, late is better than never.

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