THE EFFECT OF SECOND VICTIM-RELATED DISTRESS AND SUPPORT ON WORK-RELATED OUTCOMES IN TERTIARY CARE HOSPITALS IN KELANTAN, MALAYSIA: A CROSS SECTIONAL STUDY USING MALAY REVISED SECOND VICTIM EXPERIENCE AND SUPPORT TOOL

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UNIVERSITI SAINS MALAYSIA

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In the name of ALLAH, the Most Beneficent and the Most Merciful. Salutations upon His messenger Muhammad S.A.W (peace be upon him), his family and his companions. With enlightenments and perseverance given by ALLAH, I have duly completed this research in the nick of time.

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DECLARATION

I, Ahmad Zulfahmi Bin Mohd Kamaruzaman, declare that the work presented in this thesis is originally mine. The information that has been derived from other sources is clearly indicated in the thesis

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LIST OF MANUSCRIPTS

During my Doctor of Public Health (DrPH) course, the following articles were successfully published which corresponded to my study's objectives.

First manuscript:

Translation and Validation of the Malay Revised Second Victim Experience and Support Tool (M-SVEST-R) among Healthcare Workers in Kelantan, Malaysia

Ahmad Zulfahmi Mohd Kamaruzaman[1], Mohd Ismail Ibrahim[1]*, Ariffin Marzuki Mokhtar[2], Maizun Mohd Zain[3], Saiful Nazri Satiman[4], and Mohd Najib Majdi Yaacob[5]

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Second manuscript:

The Effect of Second Victim-Related Distress and Support on Work-Related Outcomes in Tertiary Care Hospitals in Kelantan, Malaysia

Ahmad Zulfahmi Mohd Kamaruzaman[1], Mohd Ismail Ibrahim[1]*, Ariffin Marzuki Mokhtar[2], Maizun Mohd Zain[3], Saiful Nazri Satiman[4], and Mohd Najib Majdi Yaacob[5]

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AIC	Akaike information criterion
BIC	Bayesian information criterion
CFA	Confirmatory factor analysis
CFI	Comparative Fit Index
CI	Confidence interval
COVID-19	Coronavirus disease 2019
CVI	Content validity index
DOF	Degree of freedom
EFA	Exploratory factor analysis
FVI	Face validity index
HCPs	Healthcare providers
IQR	Interquartile range
JEPeM	Research Ethics Committee (Human) University Sains Malaysia
MI	Modification indices
MPSG	Malaysian Patient Safety Goals
NMRR	National Medical Research Register
PSI	Patient safety incident
RISE	Resilience in Stressful Events
RMSEA	Root Mean Square error of approximation
SD	Standard deviation
SR	Standardised residuals
SRMR	Standardized root means square

SVEST	Second Victim Experience and Support Tool
SVEST-R	Revised Second Victim Experience and Support Tool
SVS	Second victim syndrome
TLI	Tucker Lewis Index
WHO	World Health Organisation

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ABSTRAK

Latar belakang: "Mangsa kedua" merupakan petugas kesihatan yang mengalami trauma sama ada secara fizikal, psikologi, menjejaskan kemampuan professional, ataupun emosional setelah terlibat dengan kejadian melibatkan keselamatan pesakit. Sokongan organisasi dalam bentuk sokongan rakan sekerja, ketua unit, mahupun institusi tempat bekerja memainkan peranan penting untuk mengurangkan kesan buruk yang terjadi kepada mangsa kedua. Jika tidak ditangani dengan baik, ia akan mengakibatkan kesan negatif kepada pekerjaan, dan jika sebaliknya, ia boleh memperkuat ketahanan mental dan fizikal jika kesejahteraan mangsa kedua ini terjaga dengan baik. Borang Kaji Selidik Edisi Melayu Semakan Semula Pengalaman Mangsa Kedua dan Alat Sokongan (M-SVEST-R) merupakan satu instrumen yang diiktiraf dan diguna pakai secara meluas. Kajian ini bertujuan untuk memeriksa aspek psikometri borang kaji selidik ini yang diterjemahkan ke dalam Bahasa Melayu. Seterusnya, borang kaji selidik ini akan menilai faktor-faktor yang mempengaruhi kesan negatif kepada pekerjaan serta ketahanan mangsa kedua. Sokongan organisasisi berupa sokongan rakan sekerja, pegawai atasan, serta institusi tempat kerja pula akan dinilai sebagai faktor penengah yang mempengaruhi hubungan di antaranya.

Kaedah: Bahagian pertama kajian menggunakan kaedah hirisan lintang yang melibatkan seramai 350 orang professional kesihatan di sebuah hospital pengajar di Kelantan, Malaysia. Setelah mendapat kelulusan untuk menggunakan borang kaji selidik daripada penulis asal, proses terjemahan dilakukan melibatkan 10 langkah mengikut prosedur standard penterjemahan. Pra-ujian seramai 30 orang profesional kesihatan dilakukan sebelum pengesahan faktor analisis; bagi menguji konsistensi dalaman dan pengesahan konstruk. Seterusnya, kajian dilakukan dengan disertai 733

orang profesional kesihatan daripada tiga lagi hospital tertier rujukan di negeri Kelantan, Malaysia. Tiga langkah diperlukan bagi regresi analisis bertahap untuk menilai kesan negatif kepada pekerjaan dan juga ketahanan. Aplikasi R digunakan bagi menganalisa 4 model faktor penengah tersebut.

Keputusan: Model akhir untuk M-SVEST-R mempunyai 7 faktor dan 32 item, sebagaimana disahkan mempunyai kepadanan yang baik oleh pengesahan faktor analisis. Konsistensi dalaman yang menggunakan rho Raykov menunjukkan keputusan yang baik; bacaan daripada 0.77 hingga 0.93, dengan keseluruhan rho pada 0.83. Dalam analisis regresi, tekanan mangsa kedua, kompetensi profesional, dan ketiga-tiga jenis sokongan memberikan kesan signifikan kepada model regresi. Sokongan rakan sekerja menjadi faktor penengah separuh untuk hubungan di antara kompetensi profesional dengan kesan negatif kepada pekerjaan dan ketahanan. Manakala ketiga-tiga jenis sokongan juga merupakan faktor penengah separuh untuk hubungan di antara tekanan mangsa kedua dengan kesan negatif kepada pekerjaan dan juga ketahanan.

Kesimpulan: M-SVEST-R menunjukkan aspek psikometri yang baik dengan kesahan dan kebolehpercayaan yang mencukupi, serta boleh digunakan untuk sebarang kajian berkaitan mangsa kedua. Sebagai faktor penengah, ketiga-tiga jenis sokongan mengurangkan magnitud hubungan di antara tekanan berkaitan mangsa kedua dengan ketahanan. Walaupun sepatutnya mengurangkan magnitud kesan negatif kepada pekerjaan, malahan beberapa senario sokongan menaikkan magnitud kesan negatif kepada pekerjaan disebabkan kemungkinan budaya suka menyalahkan di dalam perkhidmatan kesihatan.

Kata kunci: kajian pengalaman mangsa kedua dan sokongan; kejadian mengenai keselamatan pesakit, kejadian memerbahayakan pesakit, analisa faktor penengah, tekanan melibatkan mangsa kedua

ABSTRACT

Background: "Second victims" are defined as healthcare providers whom traumatized either by physical, psychological, reducing professional capability, or emotional as a result encountering any patient safety incidents. Organizational support (colleague, supervisor, and institutional support) is a crucial part to mitigate the second victims. If awfully treated, the second victims may subsequently progress to negative work-related outcomes, and in contrast, it cultivated resilience if their well-being is not compromised. As a method to assess the second victim syndrome in healthcare facility, The Revised Second Victim Experience and Support Tool (SVEST-R) was used. It was a well-established instrument and acknowledged worldwide. Hence, the aim of this study was firstly to evaluate the psychometric properties of the Malay version of SVEST-R. Then the next aim was to determine the factors affecting negative work-related outcomes and resilience with a hypothetical triad of support as the mediators: colleague, supervisor, and institutional support.

Methods: The first part study was a cross sectional study recruiting a total of 350 healthcare professionals from a teaching hospital in Kelantan, Malaysia. After obtaining the permission from the original author, the instrument had undergone ten steps of established translation process guideline. Pre-testing of 30 respondents were done before embarked with the confirmatory factor analysis (CFA); evaluating internal consistency and construct validity. Then, the study continued with recruitment of 733 healthcare providers from another three tertiary care hospitals in Kelantan, Malaysia. Three steps of hierarchical linear regression were developed for both outcomes (negative work-related outcomes and resilience). Four multiple mediator models of the support triad were analysed using R software environment.

Results: The final model for M-SVEST-R agreed for 7 factors and 32 items as the CFA suggested for good model fit. The internal consistency of using Raykov's rho showed good result; ranged from 0.77 to 0.93 with the total rho of 0.83. In the regression model, second victim distress, professional efficacy, and the support triad contributed significantly in the regression models. Colleague support partially mediated the relationship defining the effects of professional efficacy on negative work-related outcomes and resilience, whereas colleague, supervisor support, and institutional support all partially mediated the effects of second victim distress on negative work-related outcomes. Similar results were found regarding resilience, with all support triads producing similar results.

Conclusion: The M-SVEST-R demonstrated excellent psychometric properties with adequate validity and reliability, and readily used for any study concerning second victim. As mediators, the organizational support ameliorated the effect of second victim-related distress on resilience, suggesting an important role of having good support. However, instead of mitigating the negative work-related outcomes, some support scenarios increased the negative work-related outcomes due to possible concern of punitive culture of healthcare.

Keywords: second victim experience and support tool; patient safety incidents; adverse events: support; mediation; second victim-related distress

Chapter 1 : INTRODUCTION

1.1 Overview of second victim

Patients frequently endure appalling experience of medical errors during their hospitalization stay despite seeking medical treatment. As an evidence, the ground breaking "To Err is Human" of Institute of Medicine, has stated that approximately 98,000 patients die annually as a result to medical error (Institute of Medicine, 1999). In fact, the event does not stop but otherwise has inflicted a domino effect in healthcare as illustrated in Figure 1.1 (Ellahham, 2018; Ozeke et al., 2019). Aftermath the incidence, most attention is drawn towards comforting the first victims with little attention has been given to the healthcare providers (HCPs) attending the first victims' needs (Liukka et al., 2020; Ullström et al., 2014). Worse, the HCPs usually suffocated and left unaddressed of their own needs.

Figure 1.1: The domino effect of medical error

Hence, the unwelcoming burden on HCPs has delivered the terminology of second victims, initially coined in the year 2000 by Albert Wu of John Hopkin's University (Wu, 2020). The second victims are negatively saddled either by physical, psychological, emotional or professional (Tamburri, 2017). Second victims are further defined as the HCPs who are involved in an unanticipated adverse patient event, a medical error and/or a patient-related injury and become victimized in the sense that the provider is traumatized by the event (Scott *et.al*, 2009).

1.2 Patient safety incident

Early literatures have indicated second victim occurrence with the medical errors only. However, added by new evidences, the continuum of incidents propagating towards the occurrence of second victims happens in larger definition and is identified as patient safety incident (PSI); an event or circumstance which could have resulted, or did result, in unnecessary harm to a patient (World Health Organization, 2009). As demonstrated by Figure 1.2, a PSI could include;

- near-miss: an incident that did not get to the patient but harmful in nature
- incident report: a circumstance in which there was a high potential for harm, but no incident occurred
- morbidity and mortality review; a postmortem system after an incident happened which means for learning, educative, and corrective purpose
- or any adverse event: an incident that produces harm towards

patients and can be either preventable or vice versa (Burlison et al., 2016; Lane et al., 2018; Mitchell et al., 2016).

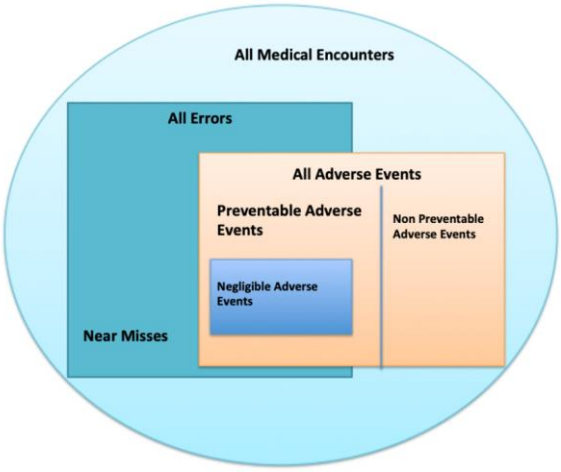

Figure 1.2: Continuum of patient safety incident (Wachter R., 2012)

1.3 A glimpse into history of second victim

Historical data captured the earliest event of second victim in 1817 upon the tragic death of Princess Charlotte of Wales, the only heir of George II. She unfortunately died due to possible postpartum hemorrhage, five hours after delivering her child. Subsequently it was a double tragedy when Sir Richard Croft, the in-charge obstetrician of late Princess Charlotte took his own life due to unbearable depression and social blaming (Kohorn, 2018).

In modern medicine, even though second victim had been mentioned since 1970's (Hilfiker, 1984; Levinson & Dunn, 1989), the second victim occurrence promulgates in the early 2000's. For an instance, one of the revelation moments came in the year 2010 when Kimberly Hiatt, a nurse in

Seattle Children Hospital, with 25 years of experience had committed a medication error. She accidentally dispensed 1.4grams of Calcium Chloride instead of 140milligrams and tragically led to the death of a 5-month-old baby. As the consequence, she was unable to land any nursing job, be the center of stigmatization, become depressed, and committed suicide after 7 months of the incident. The simultaneous array of signs and symptoms presented, has created the terminology of second victim syndrome (SVS). And due to SVS, unfortunately the world had lost a faithful healthcare servant (Sheena Maireen Saavedra, BSN, 2019). The emergence of SVS does not have similar pattern across the globe.

1.4 Incidence of second victim syndrome

The incidence of SVS in certain healthcare institutions can be as low as 10% or as great as 90%, with a mean of almost 50%. The scale of the problem differs mostly on the extent of vulnerability of each health care field identified. (Ding *et.al*., 2020; H. Edrees, 2016; Gupta *et.al*., 2019; Harrison *et.al*., 2014; Lander *et.al*., 2006; Mohamadi-bolbanabad *et.al*., 2019; O'Beirne *et.al*., 2012; Scheepstra *et.al*., 2020; Susan D. Scott *et.al*., 2010). For instance, a study among surgical specialties in India found that 91% of the respondents suffered for second victim after engaging a PSI (Jain et al., 2021). In addition, there are marked headlines in India as a few HCPs contracted SVS, had taken their own lives after enduring distressful moment after a PSI, as exemplified by the late ill-fated Dr. Anoop Krishnan and Dr. Archana Sharma (The New Indian Express, 2020, 2022).

Apparently vice versa circumstance happens for a less risky discipline such as otolaryngologists whom SVS incidence recorded as 10% (Lander et al., 2006). Most importantly, SVS does not discriminate and affect all kind of health disciplines. Worth noting, Malaysia has significantly reported a total of 6,597 PSIs and 2,506 near-misses in the year 2019 (Bakar, 2020). Despite the notable findings, there is no captured data and further elaboration on second victim as the sequelae of these incidents in Malaysia.

1.5 Problem statement

Firstly, in Malaysia, healthcare administration is centralized and hierarchical in nature, and undeniably, patient safety issues such as second victim is organized under a specific unit in the Ministry of Health. A PSI can be investigated by morbidity and mortality meeting or via incidence reporting mechanism, starting from hospital setting to the top management. Despite the good effort, the approach remains scarce concerning second victim support (Malaysia Ministry of Health, 2016).

Apart from that, current working circumstance of high workload and staffing shortage (Ahmad & Lee, 2019), added with unfavorable working environment such as workplace bullying (Samsudin et al., 2021), has further deteriorated the healthcare situation in Malaysia. Moreover, pandemic COVID-19 further worsens the situation as burgeoning burden of clinical workload, depression, burnout, and other negative effects (Alnazly et al., 2021; Woon et al., 2021). Thus, the current unprecedented circumstance leaves no chance for second victim to thrive.

In addition, the level of patient safety culture in Malaysia is mediocre and relatively below par compared to Western counterparts (A. Kim et al., 2019; Yoelao et al., 2014). Patient safety culture refers as the extent to which an organization's culture supports and encourages patient safety. It indicates to the values, beliefs, and norms that are mutually owned by HCPs within the organization that affect their actions and behaviors (Agency for Healthcare Research and Quality, 2022). Worse, as certain leaders of healthcare organization are still embracing for low threshold of patient safety culture, accomplishing support becomes more challenging for the second victim (Kalra et al., 2013; White & Delacroix, 2020).

Therefore, the rooted culture proves as an enormous hindrance for second victim to obtain support (Hellings et al., 2007). Relative to Western counterparts, healthcare in Asian countries yearn of support created to assist second victim; either it is peer, supervisor, or institutional support. Even though unofficial support perhaps still obtained, considering the larger scale of second victim, more systematic effort is deliberately needed (Jain et al., 2021; Robertson & Long, 2018).

Last but not least, healthcare is considered as an errorless zone and makes no room for a mistake. Doing an error considers as a taboo and the person tends to be penalized, scapegoated, and stigmatized with restricted medium and opportunity to recoup from the incidence (Tamburri, 2017; Tevlin et al., 2013). Thus, HCPs have since become silent sufferers; often overlooked and unattended after encountering a PSI.

1.6 Study rationale

Institute of Healthcare Improvement in United States of America has introduced Triple Aim, in order to optimize health system performance. The objectives are to simultaneously enhance patient experience, improve population health, and reduce costs. Then, the Quadruple Aim, as illustrated in Figure 1.3, later introduces the fourth aim; the care team well-being. It aims to create favorable conditions for the HCPs to find joy and meaning in their work and also improves the experience of providing care (Bodenheimer and Sinsky, 2014; Sikka *et.al*., 2015). In fact, HCPS are one of the important factor and backbone to achieve excellent clinical care. In particular, engaging a PSI without proper support would harass the affected HCPs. Nevertheless, it is an insurmountable task to achieve the Quadruple Aim if the condition let unaddressed.

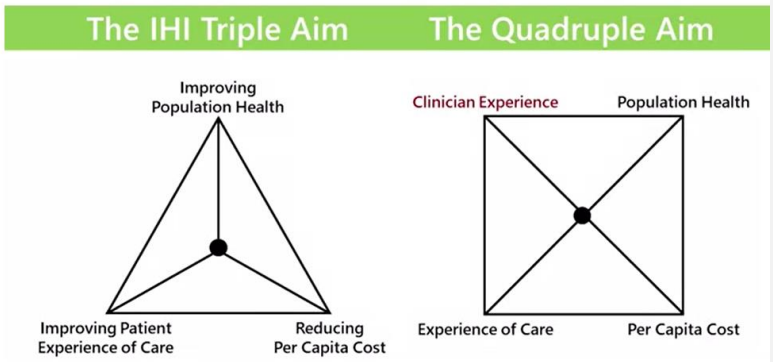

Figure 1.3: The Triple and Quadruple aim

On a similar note, during the celebration of World Safety Day 2020 with the tagline Safe Health Workers Safe Patients, current Director General of World Health Organization (WHO) Dr Tedros Adhanom Ghebreyesus, has reiterated that “No country, hospital or clinic can keep its patients safe unless it keeps its health workers safe” (World Health Organization, 2020). Either directly or indirectly, the second victim possesses the risk to produce unsafe HCPs and later inflict harm towards patients. In fact, the words of wisdom have conveyed the importance to well preserve the physical and mental safety of HCPs including the protection from becoming the second victim.

Besides, second victim has been denied for their rights. Standing up for the course, Charles Denham has introduced the five rights of second victim (Denham, 2007). The acronym is TRUST which means;

- T – The treatments should be just
- R – They should be respected
- U – They should be understood and given compassion
- S – They should be supported and
- T – They should gain transparency of the investigation of the involved incidences

If this TRUST is well founded as the general principles, the toxic punitive culture can be reduced and further to assist the second victim to get the keen support.

Since introducing Malaysian Patient Safety Goals in 2013, Malaysian healthcare has introduced the new Malaysian Patient Safety Goals 2.0 in 2022 as the guidelines to manage patient safety issues. The contents are well integrated with WHO Global Patient Safety Challenges, equipped with the new approach of more outcome-based indicators, and using online method as reporting platform (Malaysia Ministry of Health, 2021).

Despite substantial study and support programs conducted across the world, Malaysia within line decent progress for patient safety initiatives, currently still lacks related studies and support programs designed for second victim. Hence, this research aims to be the pilot study and pioneer for the second victim support system in Malaysia.

1.7 Research Questions

1) Is Malay-revised Second Victim Experience & Support Tool (SVEST-R) a valid and reliable tool to be used for second victim-related distress, work-related outcomes and organizational support (colleague, supervisor, and institutional support)?
2) What are the level of sociodemographic variables, second victim-related distress, the organizational support and the work-related outcomes (turnover intention, absenteeism and resilience)?
3) Is there any relationship between second victim-related distress and the work-related outcomes (turnover intention, absenteeism and resilience)?
4) Is there any role of organizational support (colleague, supervisor, and institutional support) on second victim-related distress and the work-related outcomes (turnover intention, absenteeism and resilience)?

1.8 Objective

1.8.1 General:

To determine the validity of the Malay version of revised Support Victim Experience & Support Tool and to study the association between sociodemographic variables, second victim-related distress, and work-related outcomes (turnover intention, absenteeism and resilience) as well as the mediation effect of organizational support (colleague, supervisor, and institutional support) on second victim-related distress and the work-related

outcomes.

1.8.2 Specific:

Phase 1

1) To translate and validate the revised Support Victim Experience & Support Tool (SVEST-R) from English into Malay language

Phase 2

2) To describe the level of sociodemographic variables, second victim-related distress, organizational support (colleague, supervisor, and institutional support), and the work-related outcomes (turnover intention, absenteeism and resilience)
3) To determine association between second victim-related distress and the work-related outcomes (turnover intention, absenteeism and resilience)
4) To determine the mediation effect of organizational support (colleague, supervisor, and institutional support) on second victim-related distress and the work-related outcomes (turnover intention, absenteeism and resilience)

1.9 Research Hypotheses

1) Malay-validated revised Second Victim Experience & Support Tool (SVEST-R) is a valid tool for second victim-related distress, work-related outcomes and organizational support (supervisor, colleague and institutional support)
2) There is significant association between sociodemograpic variables and second victim-related distress with the work-related outcomes
3) Organizational support (supervisor, colleague and institutional support) is a significant mediator between second victim-related distress and the work-related outcomes

Chapter 2 : LITERATURE REVIEW

2.1 Patient safety initiatives in Malaysia

Nowadays, patient safety is an ever growing crucial and serious public health domain worldwide. Patient safety can be defined as the avoidance, prevention, detection and amelioration of adverse outcomes or injuries stemming from the process of healthcare (Emanuel et al., 2008; European Region of WHO, 2022).

In accordance with WHO Global Patient Safety Challenges, Malaysia has integrated into self-patient safety surveillance and reporting system; namely Malaysian Patient Safety Goals (MPSG) since 2013. These MPSG describes the 13 Patient Safety Goals with the technical specification of the associated 19 key performance indicators, definitions, criteria, indicators, numerators, denominators, and targets as well as the data collection forms. Meanwhile, the reporting system has used a user-friendly online reporting mechanism to boost reporting intention (Malaysia Ministry of Health, 2021). The aggregated report is yearly monitored and based on the findings; subsequent remedial actions are considered afterwards. In addition, MPSG 2.0 has been released in early January 2022 with additional new concise indicators and improvements (Malaysia Ministry of Health, 2021).

Furthermore, during 72nd World Health Assembly has reinforced commitment on patient safety, by commemorating the World Patient Safety Day; inaugurated in 2019 and regarded as annual celebration to enhance patient safety awareness (World Health Organization, 2019). Since then, Malaysia does yearly celebrate this World Patient Safety Day with promotional

activities, webinars, and talks.

Despite the aforementioned initiatives, as far as concerned, there is no specific indicators or programs tailored for the second victims in the Malaysian healthcare. Nevertheless, in the opening of 2013 MPSG guidelines, Director General of Health has concurred with the effect towards healthcare providers and understood the importance to tackle such challenge (Malaysia Ministry of Health, 2021).

2.2 Current healthcare situation in Malaysia

Healthcare in Malaysia is largely funded by tax-based and subjected to government revenue. Ever since, the funded proportion is never exceeded 5 percent of Gross Domestic Product which particularly not on par as suggested by World Health Organization in order to gain efficient healthcare system running in a country (Bank, 2022; Jowett et al., 2016).

In fact public health system is seriously underfunded, understaffed, and the healthcare facilities are cramped with patients as reported by 2019 General Audit of Malaysia (Sira Habibu, 2019). The critical situation further deteriorates during the recent two years of pandemic COVID-19. Since the burden of clinical workload exponentially rises, there are inevitable high risk of burnout, fatigue, and depression among HCPs (Alnazly et al., 2021; Roslan et al., 2021). In addition, Khairi Jamaludin, current Health Minister of Malaysia has admitted the years of chronic underinvestment for public healthcare and taken its toll upon the quality of services. Fortunately he will table a White Paper; a healthcare reform proposal suggesting increase revenue for healthcare in Malaysia, in a later Parliamentary session (Palansamy, 2022).

Besides the issue of workload, staffing, and underinvestment, the HCPs are also affected with supplementary issues such as workplace bullying, entitlement of contracted HCPs, and the punitive culture embraced by healthcare Workplace bullying is the most recent headlines whereby the culture of harassing practiced; are intimidating, forces the victims into a depressive state., and creates disharmony in workplace. Besides, ballooning pension scheme with ever growing government servants has tabled serious allocation for monthly salaries and pension payment. Introducing contract system with initial aim to reciprocate this financing issue, however clinches backfire from contracted HCPs due to perceived unfair and unduly treatment towards them. All of these background circumstances have created more burgeoning unnecessary burden to this critical healthcare (Fong & Hassan, 2017; Manaf, 2005; Samsudin et al., 2021).

Meanwhile the punitive or blaming culture in healthcare was also addressed in the Director General of Health's opening remarks in MPSG. He had also echoed the term of "*second victim of medical errors*", elucidating the harmful effect of poor patient safety adherences in healthcare (Malaysia Ministry of Health, 2013). With numerous circulating issues, to be fair, patient safety initiatives are rather compromised even though there are progressing better efforts from Ministry of Health.

2.3 Risk of developing second victim syndrome

HCPs are at greater risk of SVS when they deal especially with (Brandom *et.al*., 2011; Engel *et.al*., 2006; S. D. Scott *et.al*., 2009).;

a) Fragile pediatric cases

Verily there is high expectation from parents and if anything bad happens to their loved ones, it is rather difficult to disclose even though the harm is well expected from the beginning.

b) More serious and severe cases

Patient's life is in imminent danger. It takes all the commitments to best serve and salvage the patient (Strametz, Koch, et al., 2021).

c) Young and healthy patients

Similar as pediatric, expectation is considerably mountainous to see the patient returns to his or her former self.

d) First casualties encountered

First occasion is always difficult. Even though a casualty is non preventable, a new healthcare provider can be plagued by extreme guilt, diminished self-confidence, and other related signs or symptoms.

e) Multiple patients with poor consequences

Hampered by multiple poor patients' outcomes can aggravate self-belief and emotional trauma especially when there is no organizational support offered.

f) Vulnerable moment of pandemic of COVID-19

Pandemic has inflicted a reality check on how overwhelmed the healthcare is. No doubt that HCPs are prone for burnout, high functional depression, family issues, and others. Engaging a PSI during this period of time would further induce unnecessary burden of SVS towards the HCPs (ECRI Institute, 2020)

g) Specific personality traits and higher degree responsibility

Humans are unique and have different personality traits. More sensitive or having high degree of responsibility persons consume more time to recover after engaging a PSI (Abdollahi et al., 2014; Engel et al., 2006).

h) Period from the encounter with patient safety incident

Level of second victim syndrome does not directly explained by the period from the last encounter with PSI. By average, a person needs a few months to return to normal self after engaged with a PSI. However, in certain occasions, the event has lasted years and worse, eternally for the involved person (Gazoni et al., 2012; S. D. Scott et al., 2009).

i) Age

Older persons come with vast experiences to cope with any catastrophic event. Therefore, younger HCPs with lack of years of experience, tend to be more affected after engaged with a PSI (Strametz, Koch, et al., 2021).

j) Female healthcare providers

Being a female poses greater risk of becoming second victim, rather than male counterparts. It can be related of natural coping mechanism or hardiness of different gender (Strametz, Koch, et al., 2021).

k) Marital status

Married or single person does not differ much in becoming a second victim. After engaged with a PSI, the support can be in many forms such as colleague, supervisor or institutional and hence, family or spouse support does not carry significant difference between both parties. Work-based support perhaps is more beneficial due to the same clinical routines can ease better understanding (Gupta et al., 2020).

l) Clinical setting

More acute clinical settings favor for second victims. For an instance, surgical-based and emergency departments have more probability of contracting second victims. The events occur at short notice, abruptly affecting the HCPs (Gupta et al., 2020).

2.4 Signs and symptoms of second victim syndrome

Second victim can be personalized into many signs and symptoms such as;

2.4.1 Physical

The second victims can experience exhaustion, gastrointestinal distress, increased heart rate, blood pressure and respiratory rate, muscle tension, and sleep disturbance (Dhillon *et. al*., 2015; Harrison *et. al*., 2015; Tamburri, 2017; Waterman *et. al*., 2007).

2.4.2 Psychological

Psychological burden can be in the form of anxiety, depression, difficult to concentrate, having flashbacks, troubling memories, and wary of repetitive memories (Cebeci *et. al*., 2015; Dhillon *et. al*., 2015; Harrison *et. al*., 2015; Hobgood *et. al*., 2005; Joesten *et. al*., 2015; Karga *et. al*., 2011; Leinweber *et. al*., 2017; O'Beirne *et. al*., 2012; Schrøder *et. al*., 2019; Shanafelt *et. al*., 2011; Taifoori and Valiee, 2015; Å Wahlberg, 2018).

2.4.3 Emotional

Emotional disturbances are the most common; affecting the second victims. The disturbances can be in the form of self-anger, regret, fear of future errors, embarrassment, feeling of guilt, and frustration (Chard, 2010; Harrison *et.al*., 2015; Hobgood *et.al*., 2005; Karga *et.al*., 2011; Leinweber *et.al*., 2017; McLennan *et.al*., 2015; O'Beirne *et.al*., 2012; Schrøder *et.al*., 2016; Taifoori

and Valiee, 2015; Venus *et.al*., 2012; Å Wahlberg, 2018; Åsa Wahlberg *et.al*., 2019; Waterman *et.al*., 2007).

2.4.4 Reduced professional efficacy

In addition to the internal signs and symptoms, second victim manifestations may be clinically conveyed by decreased work satisfaction, fear of consequences, lack of confidentiality, concern about the reactions of patients and colleagues, and feeling of inadequacy (Cebeci *et.al*., 2015; Chard, 2010; Dhillon *et.al*., 2015; Harrison *et.al*., 2015; Hobgood *et.al*., 2005; Joesten *et.al*., 2015; Karga *et.al*., 2011; McLennan *et.al*., 2015; Schrøder *et.al*., 2016; Taifoori and Valiee, 2015; Waterman *et.al*., 2007).

2.5 Negative outcomes of second victim syndrome

As a result, the second victim would show negative effects. A research in China among healthcare workers identified that 26.6 percent of them chose to leave their respective jobs after experiencing any traumatic incidents (Zhang *et.al*., 2019). It is further proved as second victim distress had significant correlation with turnover intention and absenteeism (Burlison *et.al*., 2017).

In fact, it is likely to inflate absenteeism and attrition rate. As a method of coping mechanism, the affected HCPs ought to have protected time for themselves to heal. Thriving successfully after having a PSI consumes much time, but if condition deteriorates, the second victim sometimes is forced to withdraw from his or her position (Gerven *et.al*., 2016; Misra-Hebert *et.al*., 2004; Schelbred and Nord, 2007; S. D. Scott *et.al*., 2009; Shanafelt *et.al*., 2011).

On top of that, the affected HCPs tend to generate suboptimal treatment and later tend to inflict further errors. In the opposite, defensive medicine is often used in their practices as they become traumatized by past mistakes/incidents. (Pellino and Pellino, 2015; Santoro, 2014; West *et.al*., 2006).

Besides, there are more hidden costs towards patient's care as exemplified by the delayed, postponed, or cancelled procedures or appointments, as demonstrated by Figure 2.1 (Sinnott, 2019). Apart from that, the domino effect spills the effect on the third victim; the healthcare organization where the affected HCPs are working. Subsequently, the repercussive sequelae lead to costing concern as management needs new human capital to re-train, finding temporary covers, or replacement. Besides, if further proceed with medical lawsuits or litigation, the financial cost has to be covered by the healthcare organization. (McVeety et al., 2014; Mira et al., 2017; Moran et al., 2017).

Figure 2.1: The cost of poor staff safety

Last but not least, the risk of substance abuse and worse suicide attempts would then be the proportion of dropping out, according to the normal history of recovery for second victims following adverse events. As aforementioned, the death toll after SVS has snatched the lives of the poor Kimberly Hyatt, Dr Archana Sharma, and Dr Anoop Krishna (Marmon & Heiss, 2015; S. D. Scott et al., 2009; Sheena Maireen Saavedra, BSN, 2019; The New Indian Express, 2020, 2022; Van Gerven et al., 2016).

2.6 Positive outcome of second victim syndrome

Among the positive outcome is the HCPs' resilience to handle the PSIs. There are many schools of definitions to translate the meaning of resilience. Using the American Psychological Association definition, resilience means as "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress" (American Psychological Association, 2022).

Despite surrounded by the massive negativism, the proportion of thriving second victims will benefit by improvising their resilience in dealing with daily services. It is by evidence higher resilience improves quality of life, decreases burnout probability, becomes less stressful, more self-compassion and decreases the chance for work-related outcomes; absenteeism and turnover (Ding *et.al*., 2020; Gensimore *et.al*., 2020; Kemper *et.al*., 2015; West *et.al*., 2020; Winning *et.al*., 2020).

The outcome of resilience is testified globally. Job satisfaction increases upon having good resilient attitude, exemplified in a group of psychiatric nurses in USA (Matos et al., 2010). As in China, turnover intention

is significantly reduced among primary care physicians if they acquire job satisfaction, resilience, and good work engagement with leaders of healthcare organizations (Xuewen Zhang et al., 2020). Apart from that, with the setting of geriatric department in Australia, the nurses satisfy with their job, improve their resilience, and become less stressful with routines if they are accompanied with good colleague support (Cameron, 2017).

Furthermore, inculcating resilience from as early as medical school indicates better outcome and more sturdy vulnerability for HCPs (Ellahham, 2018). It is fortunate to see that Malaysian healthcare authorities has started engagement with multiple medical schools to include syllabus regarding patient safety in medical schools (Malaysia Ministry of Health, 2021). Apart from that, before starting to work in hospital, junior doctors nowadays have been allocated with awareness courses regarding patient safety initiatives (Malaysia Ministry of Health, 2018). Starting early from medical undergraduates and junior doctors perhaps can cultivate higher threshold of patient safety culture and resilience in these future HCPs.

Besides the promising promotional activities, as majority of Malaysians are Muslims, religious platform such as preachings, prayers, motivational advices, and Holy Quran recitations do play a crucial role in improving resilience. The circumstance has been demonstrated during COVID-19 pandemic as religious platform was a desirable mechanism among HCPs to cope (Chow et al., 2021).

2.7 Recovery path of second victims

Aftermath of any PSI, there are six projected stages of recovery. The first three stages may develop in order or concurrently occur. Stage one is chaos and acute accident response subsequent the PSIs. This is the moment of confusing internal and external turmoil as the second victims are flooded with unanswered self-questioning on why and how the PSIs could have happened. The immediate concern is to attentively attend the safety of the first victims and usually extra hands summoned as the second victims are inundated with distraction and immersed with self-reflection.

Stage two is intrusive reflections. The second victims are deeply drowning into their 'own caves'. They are continuously haunted with 'what if' questions and retrospectively cursing on their misdeeds.

Stage three is restoring personal integrity. The second victims search for support from respected peers, supervisors, or family members but unfortunately many does not know whom should to turn to. They become deeply worried with their future careers and doubted others' trust on them as professionals. If left unattended and unsupported adequately, they are severed with intensified self-doubt, stigmatized, and sooner jeopardized the clinical confidence.

Stage four is enduring the acquisition. After the first victims safely stabilized and endured moment of self-reflections, the second victims are aware of the repercussive effects of post-mortem, medicolegal concern, and future litigation. If the healthcare culture is tribunal and adapting punitive culture of finding faults, the signs and symptoms become more prominent. Undoubtedly, they need institution to provide comfort and support, not