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FEAR AVOIDANCE BELIEF FOLLOWING OCCUPATIONAL RELATED INJURIES AMONG AVIATION WORKERS

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ABSTRACT

Background: The growth development of the aviation industry in Malaysia is very encouraging to become a regional aviation center. The commitments from each engage in this industry is vital to ensure its sustainability. Fear avoidance belief is subsequent complication following an occupationally related injury. It will reduce individual performance at the workplace and hinder the positive growth of an industry. Currently, there is limited data available address such issues in Malaysia.

Methods: This study is conducted to determine the association of fear avoidance belief following occupationally related injury among aviation workers. This is a cross-sectional study involving individual working in Malaysia aviation industry and sustain an occupationally related injury. The study tools used was the Fear Avoidance Belief Questionnaire (FABQ), which consists of physical related and work-related subscale.

Results: Total number of respondents involve is 195 with a mean age of 34 years old, and the majority is male (n = 103). Most of them (31.3%) were baggage & cargo handler work category. Their work natures are varied, 37.9% were engaged with a visual display unit. There is a moderately strong association of fear avoidance belief ($\phi_c = 0.26$ & 0.28) between physically related subscale with respondents work categories and work nature respectively ($P < 0.05$).

Conclusion: The fear avoidance belief among respondents exists and cannot be denied. Preventive method of enhancing self-empowerment through education and training is the effective mean in generating self-care at a workplace.

Keywords: Fear-avoidance belief, occupationally related injuries, aviation workers, FABQ.

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INTRODUCTION

The age of globalization demands innovation and new ideas to ensure the continuity of the activities and operations of an organization. It requires a high commitment to each. Employees should be seen as a valuable asset in the global competition because it will ensure the sustainability of the operation. The positive development of the aviation industry in Malaysia with the use of modern aircraft and an increasing number of passengers has a significant impact on the overall operations of the aviation industry. It requires a highly skilled individual to observe the aircraft maintenance, repair, and competent workers to ensure an efficient of aviation operations. Their nature of work which required physical strength has exposed them to occupational related musculoskeletal injuries and pain [1]. The subsequent reaction following occupationally related injury is fear emotion to execute the task accordingly due to a belief that there will be an episode of recurrent injuries [2,3]. The individuals will adopt avoidance behavior at a workplace to prevent a threat of injuries and pain. Such avoidance behavior will impose submaximal performance of the task at the workplace. The study conducted by Vlaeyen and Linton (2000) showed that the fearful following occupational related injury and pain had caused withdrawal behavior in the workplace [4]. Numerous study indicated that such avoidance and withdrawal behavior associated with decreased in functional abilities reduced muscle strength and diminished performance on physical and work related task [5,6]. Such disability will be evident in a prolonged episode of avoidance behavior and no doubt it will jeopardize the work tempo and productivities of aviation industry [7]. However, the fear avoidance belief following occupationally related injury among aviation workers in Malaysia is not fully understood because there is no data been published and documented. The purpose of this study is to determine the score of fears avoidance belief among aviation workers following occupationally related injury.

METHODOLOGY

This is a cross-sectional study and took place at the Kuala Lumpur International Airport (KLIA). The study populations were airport workers engaged directly with aviation-related activities. They had an episode of occupational related musculoskeletal injuries and seeking medical attention at the nearby Medical Centre. The meeting with the Medical Director was held to explain the purpose of the study and subsequently obtained written permission to conduct the study. The samples size is calculated using Kish. L (1965) [8] formula, $N = (Z_{1-\alpha})^2 P(1 - P) / D^2$. The prevalence of occupational related muscular injuries among aviation workers is 10%, a power of accuracy is determined at 5% and 95% of confidence interval. The total size calculated is 140. The respective medical officer will carry out a health assessment to determine the condition is an occupational related musculoskeletal injury. An explanation of the study will be carried out by the respective medical to eligible respondents before verbal consent obtained. A dedicated space is provided for the respondent to

answer and a completed questionnaire will be placed into the collection box provided. The questionnaire consists of work-related information and the Fear Avoidance Belief Questionnaire (FABQ) section. The FABQ is a set of questions that widely used to predict the avoidance behavior at the workplace [9]. It consists of physical and work-related subscales. The physically related subscale is about the belief on activities of daily living that might cause harm, and it consists of 5 questions. The work related subscales consist of 9 questions on work-related activities which respondent belief it will cause more harm of discomfort. Each subscale will be summed to determine the level of respondent belief. The total score for a high level of avoidance belief in physical activities and work-related subscales is more than 15 and 34 respectively. Cronbach's Alpha of FABQ subscale physical and work related was 0.78 and 0.75 [10]. The questionnaires were translated to the Malay language by competent language person, and the reliability of the translated questionnaire was 0.95.

Data Analysis

Descriptive type of analysis was used to describe the demographic data of aviation workers. To determine the association between fear avoidance belief and aviation workers work nature, Likelihood ratio Chi-Square is used [11]. 'Statistical Package for Social Sciences' (SPSS) 22.0 version is used to analyze the data.

RESULTS

The total number of respondent diagnosed with occupationally related injuries is 195. Majority of the respondent is male (52.8%). Age categories varied, 48.2% were between 30 – 39 years and a majority (39.5%) of respondents has 1 – 5 years of working experiences (Table 1). Majority of the respondent (n=61) were engaged as baggage and cargo handler work categories. Only a small number of a respondent is cabin crew (n=3). Work nature among respondents varies with the majority of them (n=74) working in front or using visual display unit (VDU) (Table 1). The crosstab analysis was used to describe the fear avoidance belief subscale of physical activities and work categories. Interestingly, Fear Avoidance Belief (FAB) of physical activities subscale among respondent of Air traffic controller (N=16), MRO (N=11), check-in & Boarding (N=17) and Airport security & administration (N=28) shown a high score of fear (Table 2) and relatively the work nature of sitting > 30 mins (N=19) & working in-front of VDU (N=38) is known to be at high score of fear (Table 3). To determine the association between nature of work and Fear Avoidance Belief status among workers, the *Likelihood-ratio Chi-square* was used instead of *Pearson's Chi-square* analysis because of the percentage of cells expected value of $n < 5$ exceeding 20% [10]. The analysis found that there is significant association between nature of work, categories of work and fear avoidance belief of physical activity subscale, $X^2(6, N = 195) = 16.13, p\text{-value} = 0.01$ and $X^2(6, N=195) = 13.80, p\text{-value} = 0.03$ respectively (table 4). *Cramer V* test was used to measure the strength of each association with FAB and it showed there's a moderately strong association

between variables ($\phi_c = 0.28$ and 0.26) (Table 4).

Table 1: Demographic data of respondents, their work categories and nature of work.

	n	%	Mean	min	max
Age (years)			34.2	(±7.25)	23 56
Working experience (years)			9.8	(±7.5)	1 32
Gender					
Male	103	52.8			
Female	92	47.2			
Categories of respondent works					
Cabin crew	3	1.5			
Supporting crew at the aircraft terminal	7	3.6			
Baggage and cargo handler	61	31.3			
Air traffic controller (monitoring tower)	28	14.4			
Maintenance, repair, overhaul aircraft (MRO)	18	9.2			
Passenger check-in / boarding	28	14.4			
Airport security and administration	50	25.6			
Nature of work					
Sitting > 30 mins	26	13.3			
Standing > 30 mins	10	5.1			
Prolong Walking (> 30 mins)	16	8.2			
Lifting and pushing heavy objects	30	15.4			
Repetitive motion	8	4.1			
Working in front of a visual display unit (VDU)	74	37.9			
Performing all the above activities.	31	15.9			

Table 2: Crosstab analysis of fear avoidance belief score between work categories of aviation workers.

Fear Avoidance Belief (FAB) score	Work categories (N)						
	Cab-in crew	Supporting crew at aircraft terminal	Baggage and cargo handler	Air Traffic controller	MRO	Check in & boarding	Airport security and administration
<i>Physical activities</i>							
Low score	2	5	42	12	7	11	22
High score	1	2	19	16*	11*	17*	28*
<i>Work-related</i>							
Low score	2	5	50	21	11	17	40
High score	1	2	11	7	7	11	10

* Numbers of respondents with a high score of fear avoidance belief

Table 3: Crosstab analysis of fear avoidance belief score and nature of work among aviation workers.

Fear Avoidance Belief (FAB) score	Nature of work (N)						
	Sitting > 30 mins	Standing > 30 mins	Walking > 30 mins	Lifting & pushing	Repetitive motion	Working in front of VDU	Performing all listed work nature.
<i>Physical activities</i>							
Low score	7	6	13	20	4	36	15
High score	19*	4	3	10	4	38*	16*
<i>Work-related</i>							
Low score	16	6	14	21	4	60	24
High score	10	4	2	9	4	14	7

* Numbers of respondents with a high score of fear avoidance belief

Table 4: The association between Fear avoidance belief, nature, and categories of work among aviation workers.

Fear avoidance belief (FAB)	Likelihood – ratio chi-square			Cramer's V	
	value	df	p-value	Value (ϕ_c)	P-value
Physical activity					
Nature of work	16.13	6	0.01*	0.28	0.018*
Categories of work	13.80	6	0.03*	0.26	0.035*
Work-related					
Nature of work	9.21	6	0.16	0.22	0.149
Categories of work	7.96	6	0.24	0.21	0.219

*Significant value is $p < 0.05$; statistical test = likelihood - ratio chi-square & Cramer's V

DISCUSSION

A total of 195 respondents took part in this survey started from August 2016 until February 2017. The achievement of 100% samples size made it adequate power to determine the inference and decreasing the probability of type II error [12]. The strength of this study is the primary data taken from individual involve directly with aviation activities. Furthermore, the threat of external validity has been minimized through an adequate representative from various work categories and the selection of respondent with occupationally related injuries been made by qualify medical practitioner. The prevalence on work categories showed that 31.3% of respondent seeking for medical attention were baggage & cargo handler and airport security & administration (25.6%). It is consistent with numerous study which indicates that most of the occupationally related injuries were due to performing a physically demanding task, working in front of VDU and prolong weight-bearing activities [13, 14, 15]. There's a statistical association ($p < 0.01$) between fear avoidance belief with physical activities subscales regardless of work nature and categories of work with a moderately strong association between it. However, this study indicated that there is no statistical association of fear avoidance belief in work-related subscales. The possible factors that contribute to the low score of fear on work subscale are the assistance from working colleagues and equipment's used has eased their responsibility and facilitate the work process which makes them comfortable to resume task [16]. In contrast, the high score of fear on physical subscale is because it required personal efforts and depended solely on an individual capability to fulfill responsibilities — subsequently, the perception of fear developed following physical dysfunction and inability to carry out a task as an individual [16]. Previous evidence indicated that those workers with an increased fear-avoidance belief would not be able to return to work and experience poor outcomes following medical treatment [17]. It is not the scope of this study to determine the long-term implication of fear belief following the occupationally related injury on functional capabilities. In the future, longitudinal type of study should be carried out to evaluate the effects of fear belief on individual productivity at workplace.

CONCLUSION

Risk of fear avoidance belief among aviation workers following occupationally related injuries do exist and cannot be neglected. We found that it is significant with a moderately strong relationship of fear on physical activity regardless of worker's nature and categories of work. However, there is no statistical significance of fear belief on work-related even though the data showed a relative association between it. The possible implication following of fear belief is the reduction of work quality and inability to ensure the sustainability of the aviation industry in Malaysia.

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REFERENCE

- [1] Helen Cristina Noqueira, Rodrigo L Carregaro, Rosimeire S Padula, Ana Beatriz Oliveira. Musculoskeletal disorders and psychosocial risk factors among workers of the aircraft maintenance industry. IOI Press. 2012: 4801 – 4807.
- [2] Lang, P. J. A bio - informational theory of emotional imagery. *Psychophysiology*. 1979; 16: 495 – 512.
- [3] Rachman, S. Fear and Courage: A Psychological Perspective. *Soc. Res.* 2004; 71: 149 -176.
- [4] Vlaeyen, J.W. S., and Linton, S. J. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain*. 2000; 85: 317–332.
- [5] Al-Obaidi, S. M., Al-Zoabi, B., Al-Shuwaie, N., Al-Zaabie, N., and Nelson, R. M. The influence of pain and pain-related fear and disability beliefs on walking velocity in chronic low back pain. *Internat. J. Rehabil Res.* 2003; 26, 101 – 108.
- [6] Vowles, K. E., and Gross, R. T. Work-related beliefs about injury and physical capability for work in individuals with chronic pain. *Pain*. 2003; 101: 291 – 298.
- [7] Boersma, K., and Linton, S. J. How does persistent pain develop? An analysis of the relationship between psychological variables, pain and function across stages of chronicity. *Behav Res Ther.* 2005; 43: 1495 – 1507.
- [8] Kish Leslie. Survey Sampling. New York: John Wiley and Sons Inc; 1965
- [9] Waddell G, Newton M, Henderson I, Somerville D, Main CJ. A Fear-Avoidance Beliefs Questionnaire (FABQ) and the role of fear-avoidance beliefs in chronic low back pain and disability. 1993; *Pain*: 52, 157-168.
- [10] Inrig T, Amey B, Borthwick C, Beaton D. Validity and reliability of the Fear-Avoidance Beliefs Questionnaire (FABQ) in workers with upper extremity injuries. *J Occup Rehabil.* 2012; 22 (1): 59 – 70.
- [11] Mc Hugh. The Chi-square test of independence. *Biochemia Medica.* 2013; 23 (2): 143 – 149.
- [12] Avitas Benerjee, U.B. Chitnis, S.L. Jadhav, J.S. Bha-walkar. Hypothesis testing, type I and type II errors. *Industrial Psychiatry Journal.* 2013; 8 (2): 127 – 131.
- [13] Hiyasmine Dizon-mangubat, Primavera B. Galinato & Jose Bonafacio S. Ratnam. Prevalence of cumulative trauma disorders of the upper extremity and identification of risk factors among non-medical personnel in the University of the Pilippines general Hospital. *ACTA Medica Philippine.* 2010; 44 (2): 45 – 51.
- [14] Punnet L, Wegman DH. Work related musculoskeletal disorders. The epidemiologic evidence and the debate. *J electromyogr kinesiol.* 2004; 14 (1): 13 – 23.
- [15] Dane D, Feverstain M, Huang GH, Dimberg L, Ali D, Lincoln A. Measurement properties of self-reported index of ergonomic exposures for use in an office work environment. *J Occup Environ Med.* 2002; 44 (1): 73 – 81.
- [16] Ole Kudsk Jensen, Kristian Stengaard Pedersen, Chris Jensen and Claus Vinther Nielsen. Prediction model for unsuccessful return to work after hospital-based intervention in low back pain patients. *BMC Musculoskeletal Disorders.* 2013; 14: 140.
- [17] George SZ, Fritz JM, Childs JD. Investigation of elevated fear-avoidance beliefs for patients with low back pain: a secondary analysis involving patients enrolled in physical therapy clinical trials. *J Orthop Sports Phys Ther.* 2008; 38: 50-58.

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