PSYCHOLOGICAL WELL-BEING AMONG FEMALE TECHNOLOGIST IN MALAYSIAN INDUSTRY

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ABSTRACT: *Currently, technical women such as women engineers or technologist mostly have a problem with happiness at their workplace. They are not happy at their workplace. Therefore, there is a lot of study about happiness at the workplace. Studies have shown that a happy worker is productive workers. However, the study on the influence of work-life balance and employability on psychological well-being for women technologists is very limited in term of gender aspects. Studies have shown that women employees are more likely to be psychological or prefer internal career success compared to men who are preferred external career success. Therefore, this study was conducted to test the effect of work-life balance and employability on psychological well-being among female technologists. Three variables were studied which are work-life balance, employability and psychological well-being. All variables are measured using questionnaires. Data was collected from 114 female engineering technology graduates from technical universities in Malaysia. The data was analyzed using descriptive and inferential statistics. The PLS-SEM method was used by using SmartPLS Ver 3.0 software. The results of the study showed that work-life balance and employability had a significant influence on psychological well-being. Therefore, work-life balance and employability become predictors towards psychological well-being for female technologists. This study contributes to the enrichment of gender-based organizational behavioral theories. The findings of this study have contributed to the practical management of industry and educational psychology in the engineering field in higher education institutions in Malaysia.*

Keywords: psychological well-being, employability, work-life balance, engineering technology.

1. INTRODUCTION

Women have multiple roles in family and workplace. Currently, women go beyond the boundaries and excel in various fields, especially education including technical education. As a result, the number of women in industries in Malaysia was increasing. However, inter-organization mobility among technical women is higher than men. One of the factors is lacking in psychological well-being among these women. Psychological well-being aspect of women is sometimes neglected by an employer where there is no specific policy for this group at the workplace. Many researchers acknowledge that psychological well-being has the potential to affect female employees and organizations. Based on a study conducted by Oswald, happiness raises productivity [1]. Therefore, there is a need to study the psychological well-being of female technologists who enter the workforce in industrial fields.

2. OBJECTIVE

This study has three objectives:

Objective 1: Determine the relationship between the factors influences psychological well-being among female engineering technology graduate in Malaysian industry.

Objective 2: Determine how employability may be relevant to psychological well-being.

Objective 3: Determine the most significant contributing factors to psychological well-being among female engineering technology graduate in Malaysian industry.

3. LITERATURE REVIEW

Psychological well-being is one of the most important constructs that can measure the effectiveness of employees. The construct was found to have a positive and significant relationship with positive performance and behavior in the workplace. Psychological well-being is a broad and subjective concept in which it encompasses various aspects of the economy, education, workplace, social life, and family. Psychological well-being affects human life because it influences the level of productivity, efficiency, effectiveness, and achievement of employees at the workplace [2, 3]. Therefore, psychological well-being also influences physical and mental health [4]. Individuals who are positive and happy is found to have good mental and physical health as well as better behavior [4].

The study conducted by Cuyper et al. on the relationship between employability and psychological well-being found that employability had affected psychological well-being [5]. Employability can be used by the management to improve psychological well-being inside and outside the workplace. However, the study conducted by Chen on the relationship between psychological well-being and employability found that psychological well-being influenced employability[6].

The study conducted by Zulkarnain on the relationships between quality work-life and psychological well-being found that quality work-life could increase the psychological well-being of employees [17]. Other study conducted by Gropel on the relationships between work-life balance and psychological well-being found that there was a positive relationship between work-life balance and psychological well-being [7].

The study conducted by Direnzo et al. on employability which is one of the Protean Career Orientation components towards work-life balance shows that employability has a relationship with work-life balance [8].

3.1. Hypothesis Development

Hypothesis 1 :	Employability (EMP) has a positive relationship with psychological well-being (PWB)
Hypothesis 2 :	Work-life balance (WLB) has a positive relationship with psychological well-being (PWB)

Hypothesis 3 : Work-life balance (WLB) has a positive relationship with employability (EMP)

Hypothesis 4 : Work-life balance (WLB) influence employability (EMP) which, in turn, influences psychological well-being (PWB)

3.2. Research Framework

There is a contradiction in the study for the relationship between employability and psychological well-being based on a study conducted by De Cuyper [5] and Chen [6] where the contradiction between two studies is sample or respondent. This is a gap in this study where the sample of De Cuyper's research was employees while the study from Chen is students. Because of our research population is employees, then the researcher constructs hypothesize that employability influencing psychological well-being.

Based on literature and hypothesizes above, research framework was proposed as Fig. 1.

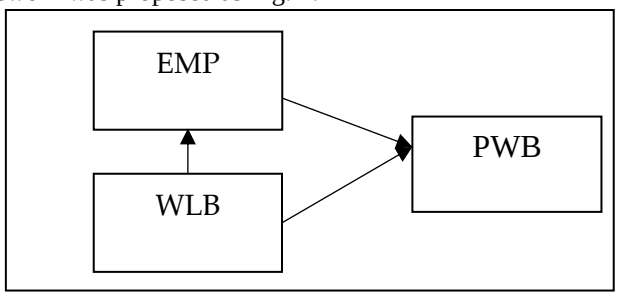

Fig. 1. Research framework

4. METHODOLOGY

4.1. Sample

The sample is female engineering technology graduates who are currently working at least 1-year working experience in various types of industries in Malaysia. The sample was selected by using purposive sampling based on preliminary data collected from technical universities in Malaysia. Based on preliminary data, the researcher wrote e-mails to the human resources department to get approval to conduct the research. Upon approval from human resources management, the questionnaire was sent to respondents via email. A total of 114 female engineering technology graduates with working experience at least 1 year have been identified as survey respondents. Data is stored in SPSS software for analysis.

4.2. Instrument

The instruments used in this study are based on established research instrument as Table I. Back to back translation process was conducted by four languages expert. A pilot study was conducted using the instrument in dual language, English and Bahasa to 30 female engineering technology graduates. Alpha Cronbach for pilot study as Table I.

TABLE I. Research instrument

No	Construct	Quantity of Item	Alpha Cronbach Previous study	Alpha Cronbach Pilot study
1	Psychological well-being [9]	8	0.72	0.800
2	Employability [10]	11	0.83	0.855
3	Work-life balance [11]	4	0.84 to 0.94	0.773

5. RESULT

The structural equation modeling (SEM) technique using partial least squares (PLS) with SmartPLS 3.0 software was used to analyses inferential statistics [12]. First, an analysis was conducted to identify the effects of 'common method bias' to ensure that there is a representation of the response received from the respondent. For this purpose, a collinearity test using SmartPLS software was conducted to determine the existence of common method bias in a developed model. Based on Table II, there is no response bias was noted in the analyses.

TABLE II. Inner VIF Values

	PWB
EMP	1.078
WLB	1.078

VIF scores are below 3.3 [13]

5.1. Measurement Model

The measurement model was tested to validate the instruments as Fig. 2.

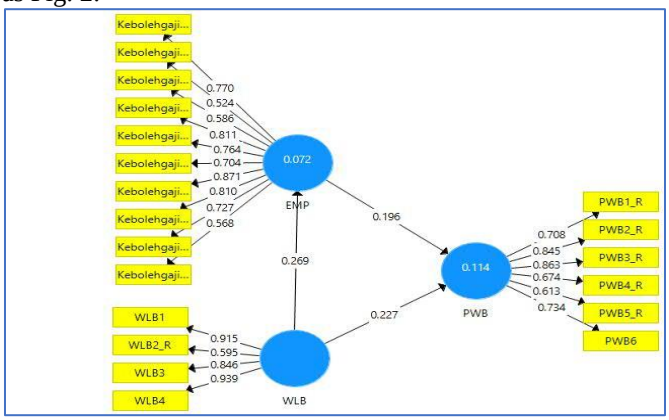

Fig. 2. Measurement model

Based on the measurement model, item for EMP9, PWB7, and PWB8 were deleted due to low loading.

TABLE III. Construct Reliability and Validity

	Cronbach's Alpha	Rho_A	Composite Reliability	AVE
EMP	0.893	0.904	0.914	0.521
PWB	0.845	0.892	0.880	0.555
WLB	0.854	0.944	0.900	0.697

TABLE IV. Fornell-Larcker Criterion for Discriminant Validity

	EMP	PWB	WLB
EMP	0.722		
PWB	0.257	0.745	
WLB	0.269	0.280	0.835

TABLE V. Cross Loadings

	EMP	PWB	WLB
EMP1	0.770	0.106	0.227
EMP10	0.524	0.179	0.217
EMP11	0.586	0.226	0.159
EMP2	0.811	0.237	0.245
EMP3	0.764	0.180	0.198
EMP4	0.704	0.181	0.097
EMP5	0.871	0.251	0.229
EMP6	0.810	0.100	0.226
EMP7	0.727	0.136	0.177
EMP 8	0.568	0.195	0.100
PWB1_R	0.157	0.708	0.181
PWB2_R	0.212	0.845	0.195
PWB3_R	0.218	0.863	0.175
PWB4_R	0.089	0.674	0.146
PWB5_R	0.095	0.613	0.110
PWB6	0.264	0.734	0.326
WLB1	0.317	0.277	0.915
WLB2_R	-0.023	0.212	0.595
WLB3	0.255	0.141	0.846
WLB4	0.219	0.295	0.939

TABLE VI. Heterotrait-Monotrait Ratio (HTMT)

	EMP	PWB
PWB	0.265	
WLB	0.287	0.299

5.2. Structural Model

Stone-Geisser's Q2 value was measured as an indicator of the model's predictive relevance [14]. In this study, the value of Q2 is above 0 which is 0.045. If the value of Q2 is larger than 0, we can conclude that the developed model has sufficient predictive relevance [15]. The endogenous constructs in the developed model have a moderate predictive relevance capability [16].

The structural model was tested in term of the relationships that were hypothesized as Fig. 3.

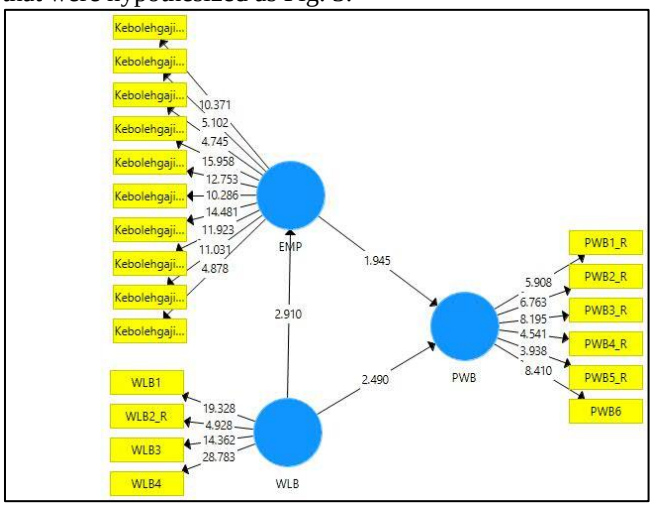

Fig. 3. Structural model

Path analysis was used to test four hypotheses generated in earlier stages. The results are presented in Table VII. There was a positive relationship (t=1.945, p<0.05) between employability and psychological well-being. There was also a positive relationship (t = 2.490, p<0.05) between work-life balance and psychological well-being. There was also a positive relationship (t = 2.910, p< 0.05) between work-life balance and employability. There was no mediator (employability) between the relationship of work-life balance and psychological well-being (t = 1.434, p< 0.05). Thus all hypothesis was supported except hypothesis 4.

TABLE VII. Hypothesis Testing

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
EMP -> PWB	0.196	0.214	0.101	1.945	0.026*
WLB -> EMP	0.269	0.299	0.093	2.910	0.002*
WLB -> PWB	0.227	0.247	0.091	2.490	0.007*

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
WLB -> EMP -> PWB	0.053	0.063	0.037	1.434	0.076

*p< 0.05,

The magnitude of R2 is used to predict the accuracy of the developed model. In this study, the value of R2 PWB was 0.114, suggesting that 11.4% of the variance in psychological well-being could be explained by employability and work-life balance.

TABLE VIII. LV Index Values and LV Performances for IPMA

	LV Index Values (Importance)	LV Performances
EMP	5.465	62.838
WLB	4.730	62.164

As shown in Fig.4, the Importance-Performance Map Analysis (IPMA) of psychological well-being reveals that employability is primary importance-performance to increase happiness among women technologist.

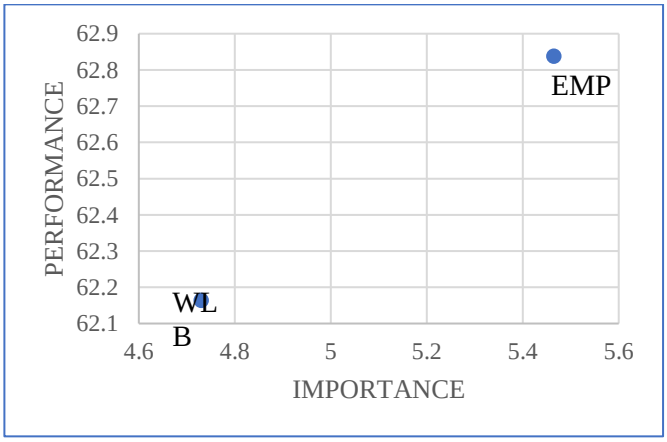

Fig. 4. IPMA Representation of Psychological Well-Being

6. DISCUSSION

The findings of this study on the relationships between employability and psychological well-being are similar to previous research [5] where employability has a positive relationship with psychological well-being. However, the findings of this study are slightly different from the findings of the study conducted by Chen [6]. Based on his research, psychological well-being affects employability. The significant difference between the two findings is the sample or respondent where in the study conducted by Chen the sample is students whereas in another study it is employees [6]. This study contributed a new knowledge that the relationship between employability and psychological well-being is for employees while the relationship between psychological well-being and employability is for students.

Regarding the findings for the relationships between work-life balance and psychological well-being, the result is parallel to previous studies which work-life balance affects psychological well-being [7, 17]. Since work-life balance becomes one of the important factors to psychological well-being, higher education institutions are suggested to consider time management skills in their curriculum. Besides of that, employers should take the appropriate action such as formulate a suitable working policy for new female technologists in term of working environment with a flexible working hour, working not more than 8 hours a day, etc.

The findings of the relationships between work-life balance and employability shown that the results of this study were contradicted to the results of the study conducted by Direnzo et al. where the results found work-life balance influencing the employability [8]. The gap between the two studies is gender, age, and working experience. The findings show that female technologists who have just completed their studies and just enter the workforce need employability to do their job well. This is supported by IPMA analysis that shows employability is more important than work-life balance.

Regarding hypothesis testing on employability as a mediator between the relationship work-life balance and psychological well-being, this study showed that the hypothesis was not significance. Employability is not a role as a mediator between work-life balance and psychological well-being.

The findings also show that the influence of employability and work-life balances contributes 11.4% to psychological well-being. Another 88.6 % is due to other factors. The findings from the IPMA analysis show that the main factor contributing to psychological well-being is employability. Female technologists who are newly enrolled in the workforce need to be given courses and training that are appropriate to the work to be done. With this training, she will be able to do a good job and subsequently improve their psychological well-being.

7. LIMITATION OF THE STUDY

The findings of this study are limited to female engineering technology graduates from the technical universities in Malaysia aged 22 to 35 who are currently employed in the industry in Malaysia with at least 1 year to 10 years working experience.

8. CONCLUSION

This study proves that the construct of employability and work-life balance can predict the psychological well-being of female engineering technology graduates in their organization. This study suggests that apart from knowledge in engineering, the higher education institutions in engineering needs to consider specific curriculum to enhance employability of female engineering technology graduates in industries. Employers are encouraged to provide suitable training and courses that can enhance employability among female engineering technology graduates. Employers are also encouraged to formulate work rules that can provide work-life balance. There is another predictor that can be considered in

the next study since only 11.4% of the variance in psychological well-being could be explained by employability and work-life balance. In addition to that, personality traits can be considered in the next studies.

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