

**MODELLING THE RETIREMENT PLANNING AMONG STAFF IN A PUBLIC UNIVERSITY BY USING MULTIPLE LINEAR REGRESSION**  
(Pemodelan Perancangan Persamaan Dikalangan Kakitangan di Sebuah Universiti Awam dengan Menggunakan Model Regresi Linear Berganda)

AMIRAH FATINI BERAHIM @ AB RAHMAN, WAN NURUL FATHIHAN WAN AHMAD FEKRI, NOOR ZAFARINA MOHD FAUZI, SHAMSUNARNIE MOHAMED ZUKRI & NOR HAZREENI HAMZAH

*ABSTRACT*

Retirement is a stage in life when a person decides to leave the workforce permanently. In Malaysia, the typical retirement age is 65. Individuals can predict how quickly and likely they will be able to reach their retirement goals with good retirement planning. Hence, the purpose of this study is to identify the determinants of retirement planning which are health, job environment, and financial planning among staffs in a public university in Kelantan. In this study, 85 samples were selected using a stratified random sampling technique that involve academic and non-academic staff. The data were collected using questionnaire that was distributed via WhatsApp and e-mail. To achieve the objectives, the data was analyzed using Multiple Linear Regression. From this study, it can be concluded that there are two variables that significantly influence retirement planning which are health, and financial planning. In conclusion, individuals are advised to take good care of their health, and it is advisable for individuals to have investment property for future saving.

*Keywords:* financial planning; health; job environment; retirement planning

*ABSTRAK*

Persaraan adalah tahap kehidupan apabila seseorang memutuskan untuk meninggalkan kerja secara kekal. Di Malaysia, usia persaraan biasa adalah 65 tahun. Individu dapat meramalkan kehidupan selepas persaraan adakah dapat mencapai matlamat persaraan mereka dengan perancangan persaraan yang baik. Sehubungan itu, tujuan kajian ini adalah untuk mengenal pasti penentu perancangan persaraan merangkumi kesihatan, persekitaran pekerjaan, dan perancangan kewangan di kalangan kakitangan di satu universiti awam di Kelantan. Dalam kajian ini, 85 sampel dipilih menggunakan teknik pensampelan rawak berstrata yang melibatkan staf akademik dan bukan akademik. Data dikumpulkan menggunakan borang soal selidik yang diedarkan melalui WhatsApp dan mel-e. Untuk mencapai objektif, data dianalisis menggunakan Regresi Linear Berganda. Daripada kajian ini, dapat disimpulkan bahawa terdapat dua pemboleh ubah yang mempengaruhi secara signifikan terhadap perancangan persaraan iaitu perancangan kesihatan, dan kewangan. Kesimpulannya, individu disarankan untuk menjaga kesihatan mereka, dan disarankan bagi individu untuk memiliki harta pelaburan untuk simpanan di masa depan.

*Kata kunci:* perancangan kewangan; kesihatan; persekitaran pekerjaan; perancangan persaraan

## 1. Introduction

According to Snell *et al.* (2018), people usually will go through five career building level which are the preparation of work, organizational entry, early career, midcareer, and the late career. The final stage, which is late career between the ages of 55 and retirement, is a

significant period for working people in which they begin to discontinue their normal routine. Some retirees enjoy retirement because it allows them to recover after a long time of work. Others, on the other hand, do not want to quit since they are unable to work. They could feel different because they worked every day and need to stop doing their daily tasks unexpectedly

Most of the developed countries have a retirement age of 65. In Malaysia, the proposal to extend the retirement age beyond 60 has resurfaced after a one-year hiatus (Firdaos 2019). However, Razak *et al.* (2019) mentioned that many employers and manufacturers are opposed to a rise in retirement age as the hiring of younger workers will be limited. The former Malaysian Prime Minister, Tun Dr. Mahathir Mohamad, the mandatory retirement age did not need to be increased from 60 to 65 (Hardi 2019). According to Ng and Yap (2019), the Malaysian Employers Federation (MEF) said that workers over 60 years of age were more vulnerable to health issues that meant employers would have to pay more for health insurance and benefits. The Department of Statistics Malaysia reported that Malaysia is exposed to increasing life expectancy and lower fertility levels (Norma 2019). The retirement age is being connected with life expectancy. As highlighted by Aisyah (2019), as reported by the Statistics Department the current retirement age relates to the average life expectancy of 74.5 years. Malaysians are expected to live for 15 to 20 years after retirement; hence, they have to ensure that they have enough saving to plan their retirement. However, aging Malaysian employees are unaware of the importance of pension planning. Moorthy *et al.* (2012), revealed that many pre-retirees and workers are not prepared for their golden years of retirement. This will give a negative impact on their retirement planning days as there is no clear saving strategy for their future retirement. Moreover, Bank Negara Malaysia revealed today that up to 92 percent of Malaysians are worried about their financial situation and needs in old age and are not ready for retirement. Statistics showed that 33 per cent were very worried about their financial situation when they reached old age, while the remaining 59 per cent were quite worried (Jessica 2016). The idea of a happy retirement by the age of 60 is currently becoming a distant reality because according to the Credit Counseling and Debt Management Agency (AKPK), more than 50 percent of Malaysians may not be financially ready for retirement (Aisyah 2019). Nowadays, many retirees have spent their pension money in a moment for investment and buy assets. This is because they lack preparation for retirement. According to EPF, 70% of members who withdraw their assets at the age of 55 use their investments less than a decade after retirement (Jomo 2017). A study by Okolie (2011) suggested that when people get older and end their careers, they start to worry about retirement due to un-preparation. However, due to social circumstances, some people neglect this plan. The education level would be the guidance for individuals in order to prepare retirement planning. An individual with a higher level of education tends to have better retirement planning compared with those who have a lower level of education. When compared to those with a lower degree of education, those with a greater level of education have superior retirement planning (Mohd Fitri *et al.* 2015). Furthermore, health is the core concern for pre-retirees. As healthy workers are more likely to retire later, the simple relationship between health and retirement is likely to be positive (Hagen 2018). Aside from that, one of the most important aspects of retirement planning is the work environment. Based on Gortz (2012), the reasons for retirement suggest that work conditions are key drivers of the decision to retire, while economic factors tend to be of secondary importance which means if the job requirements suit what the workers want, it will contribute to the employee's job satisfaction and some impact on retirement later. In other hand, saving is the best guarantee of financial well-being for retirement for most people. Saving, on the other hand, is the best guarantee of financial well-being for most people in retirement. Despite this lack of trust, most people do not save or fail to save over time in order to give sufficient financial assistance in old life (Ward & Dhimi 2016). Hence, the purpose of this study is to investigate

the determinant of retirement planning consciousness among staff in one public university in Kelantan. The theoretical framework for this study as shown in Figure 1.

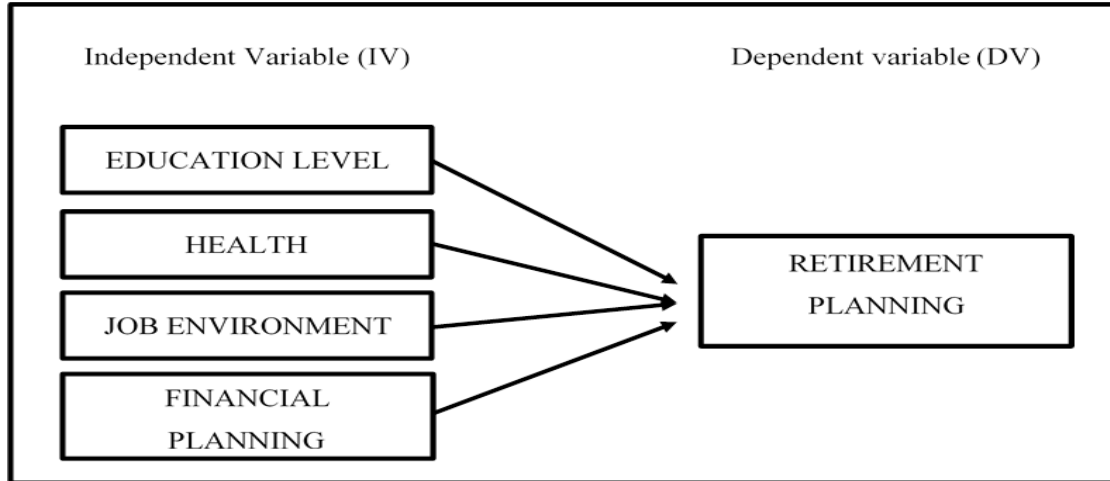


Figure 1: Theoretical framework

## 2. Methodology

The population of this study was all staffs from one public university in Kelantan. The total population was 122 staffs consisted academic and non-academic staffs. The type of research design for this study was a cross-sectional design since the data about determinant of retirement planning was obtained once.

### 2.1. Sampling

The total number of staffs in one public university in Kelantan are 122. Out of 122, 85 staffs were selected as the respondent to participate in this research by using Raosoft calculator with 5% of the margin of error and 90% confidence interval. In this study, the probability sampling technique used is stratified random sampling since the population is heterogeneous, and the sampling frame is readily accessible. The researcher divides this heterogeneous population into two homogeneous groups which are academic and non-academic. The elements in each stratum have similar characteristics and attributes. Then, simple random sampling was applied in order to select samples from each stratum. Therefore, the sample was 34 academic staffs and 59 non-academic staffs. The number of sample sizes from each stratum is calculated by using formula in Table 1.

Table 1: Number of sample size for each stratum

Category	Number of staffs	Proportionate Sample Size
Academic	45	$(93/122*45) = 34$
Non-Academic	77	$(93/122*77) = 59$

## 2.2. Data collection

In this research, the personal administered questionnaire should be used to collect the data. However, since the researcher need to obey to the Movement Control Order (MCO) due to COVID-19 pandemic outbreak, the link of questionnaire is distributed through WhatsApp application and email. This method requires the researcher to greet the respondents and briefly explain their intentions.

## 2.3. Measuring instrument

The main instrument for this study was questionnaire. The questionnaire consists of five sections which were respondent's profile, retirement planning, health, job environment, and financial planning section. Section A consists of respondent profile questions regarding the staffs' general information such as gender, age, status, income and education level. Retirement planning is the dependent variable in this study. The independent variables in this study are education level, health, job environment, and financial planning. The questions in section B, C, D, and E are measured using a Likert-scale Interval, where the scale is from 1 (strongly disagree) to 7 (Strongly agree). Table 2 summarized the details of the questionnaire.

Table 2 : Details of questionnaire

Section	Variable	Number of Question	Sources
A	Respondent Profile	9	-
B	Retirement Planning	9	Fadilah <i>et al.</i> (2011) Staten (2016) Kimiyaqhalam <i>et al.</i> (2017)
C	Health	7	Che Leman (1996) Hesketh and Griffin (2010) Suridah (2017) Sima and Jemon (2019)
D	Job Environment	7	Fadilah <i>et al.</i> (2011) Sima and Jemon (2019)
E	Financial Planning	9	Fadilah <i>et al.</i> (2011) Selvadurai <i>et al.</i> (2018) Hesketh and Griffin (2010)

## 2.4. Pilot study

Pilot study is defined as a study done before the actual fieldwork is carried out, to check the validity and reliability of the study. The purpose is to recognize the potential problems and difficulties that the researcher may experience while carrying out the actual study. Cronbach's Alpha is used to check the reliability of the questionnaire. As stated by Zainudin (2012), the value of Cronbach's Alpha must be above 0.6 to determine the questionnaire is reliable and if the Cronbach's Alpha is below 0.6, some of the items in the questionnaire should be removed. For pilot study, the questionnaire is distributed randomly to 24 staffs which is 20% of the population.

## 2.5. Method of data analysis

This study used descriptive and inferential statistics. For inferential statistics, the suitable analysis is Multiple Linear Regression.

### 2.5.1. Descriptive statistic

Descriptive statistics were used in order to describe the characteristics of qualitative variables which are gender, age, marital status, monthly income, and education level. Descriptive statistics can be used in simplifying the large amount of data in a sensible way. The data being analysed by referring to the percentage and frequency obtained.

### 2.5.2. Inferential analysis

Multiple linear regression analysis is a statistical technique used to explain the relationship between dependent variable (Y) and several independent variables (X's). Model adequacy checking is being used to check the appropriateness of the model which are the dependent and independent variables must be linear relationship, no significant outlier, the error terms are normally distributed and have constant variance, and the independent variables are not correlated. The model is written as in Eq. 1.

$$\hat{Y} = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \varepsilon_t \quad (1)$$

where:

$\hat{Y}$  = retirement planning

$\beta_0$  = y-intercept

$\beta_1$  = health

$\beta_2$  = job environment

$\beta_3$  = financial planning

$\varepsilon_t$  = error term

Correlation analysis is used to identify the strength of the association between two variables and the direction of the relationship by using the value of coefficient of correlation ( $r$ ). Next, goodness of fit is used to measure on how well the observed data correspond to the fitted model by using  $R^2$  and  $R^2_{adj}$ .

## 3. Data Analysis

The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 23. The characteristics of respondents was presented by using descriptive statistics while inferential statistics was applied to achieve the objective of this study. The statistical test that has been used for this study is multiple linear regression.

### 3.1. Reliability analysis

Cronbach's alpha was used in order to determine how reliable the items in the questionnaire. Referring to Table 3, the Cronbach's Alpha coefficients for all sections were above than 0.6; retirement planning (0.837), health (0.701), job environment (0.964) and financial planning

(0.786). Therefore, it can be concluded that all items within that sections were acceptable to the study.

Table 3: Summary of reliability for each section

Section	Number of Questions	Cronbach's Alpha
Retirement Planning (Y)	9	0.837
Health (X1)	7	0.701
Job Environment (X2)	7	0.964
Financial Planning (X3)	9	0.786

### 3.2. Descriptive statistics

Table 4 describes the characteristic of respondents in term of sample size (n) and percentage (%). The percentage of male and female respondent is slightly different which is 52.94 % for male and 47.06 % for female. Since the percentage of male respondents is higher compare to female respondents, it can be concluded that most of the respondents were male. Based on age, majority of respondents aged between 30 to 39 years old which is 40% and followed by the respondents that aged between 50 years old and above, where it contributes 32.94% of the respondent. While the rest were aged between 20 to 29 years old and 40 to 49 years old. Asides from that, most of the respondents were already married which contribute 95.29%. While the rest, 3.53% and 1.18% were single and others. Next, income range from RM2001 – RM4000 has dominated the respondents with 49.41%. Then it is followed by 23.53% staff in the income range RM4001 – RM6000 and above RM6000. There are fewer of them who gained salary less than RM2000, which is 3.53%. The level of education divided into SPM, Diploma, Degree, Master and PhD. The result shows that 34.12% of the staff hold Master, followed by SPM with 32.94%. Diploma and degree level were 20% and 9.41% staff respectively. The least is PhD which is only 3.53%.

Table 4: Respondent's characteristics

Characteristic	n (%)
Gender	
Male	77 (31.7)
Female	166 (68.3)
Age	
30-39 years old	34 (40%)
40-49 years old	22 (25.89%)
>50 years old	28 (32.94%)
Marital Status	
Married	81 (95.29)
Single	3 (3.53)
Others	1 (1.18)
Monthly Income	
RM2000 and below	3 (3.53%)
RM2001 to RM4000	42 (49.41%)
RM4001 to RM6000	20 (23.53%)
Above RM6000	20 (23.53%)
Education Level	
SPM	28 (32.94%)
Diploma	17 (20.00%)
Degree	8 (9.41%)
Master	29 (34.12%)
PhD	3 (3.53%)

### 3.3. Inferential statistics

Multiple linear regression is used to determine the relationship between health, job environment, financial planning and dependent variable which is retirement planning. Table 5 shows that there is weak positive linear relationship between the retirement planning and health ( $r = 0.418$ ), and job environment ( $r = 0.231$ ). Meanwhile, there is a moderate positive linear relationship between financial planning and retirement planning ( $r = 0.560$ ). Since the  $p$ -value for all variables are less than 0.05, it can be concluded that there is a significant relationship between retirement planning with health, job environment and financial planning. The  $p$ -values for health, job environment and financial planning are 0.000, 0.017 and 0.000 respectively.

Table 5: Pearson correlation between dependent (retirement planning) and independent variables (health, job environment, financial planning)

	Retirement Planning	
	Pearson Correlation ( $r$ )	Sig. (2-tailed)
Health	0.418	0.000
Job Environment	0.231	0.017
Financial Planning	0.560	0.000

From Table 6, it can be concluded that there is no outlier should be removed from the model since the smallest critical value of chi-square is 0.0108 which is still greater than 0.0001.

Table 6: Significance of outlier

Mahalanobis Distance	Critical Value
11.18687	0.0108

On the other hand, from the Table 7, there is no multicollinearity exist since all the tolerance values (0.514, 0.564 and 0.831) are greater than 0.1 and  $VIF$  values (1.946, 1.772 and 1.203) are less than 10.

Table 7: Collinearity statistics

Variable	Tolerance	$VIF$
Health	0.514	1.946
Job Environment	0.564	1.772
Financial Planning	0.831	1.203

Before performing multiple linear regression, there are several assumptions that should be fulfilled which are normality of error, constant variance and no multicollinearity. Figure 2 and Figure 3 illustrates the error terms are normally distributed and have a constant variance since most of the points are lies approximately on the straight line and the points are randomly scattered respectively.

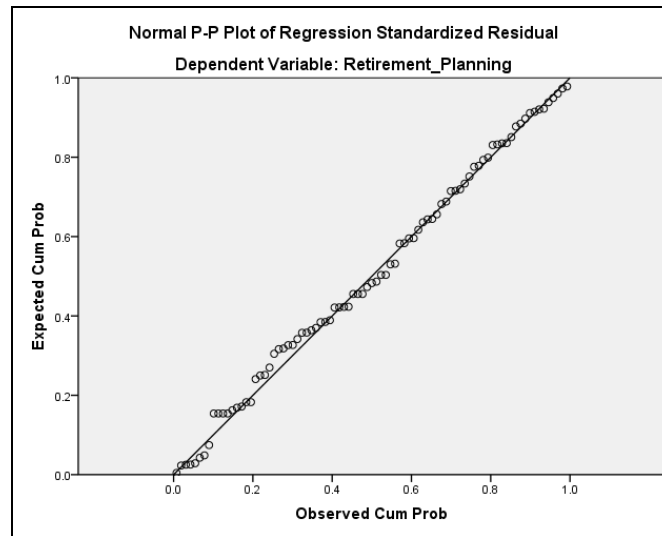


Figure 2: Normal P-P plot of regression standardized residual

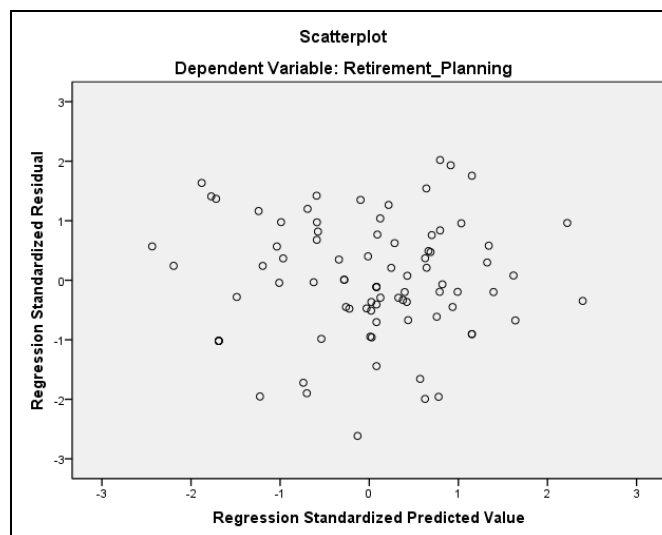


Figure 3: Scatter of residual against predicted value

Based on the result in Table 8, since the  $p$ -value ( $<0.001$ ) is less than 0.05, the model is significant. It means that at least one variable that give significant effect towards retirement planning. Based on the Table 9, only two variables are significant which are health and financial planning since the  $p$ -value for both variables are less than significance level. The  $p$ -value for health and financial planning are 0.021 and 0.000 respectively.

Table 8: Significance of the model

Model	Sig.
Regression	$<0.001$



Table 9: The coefficient of Variables

Model	$\beta$ -coefficient	Sig.
Constant	0.351	0.619
Health	0.320	0.021
Job Environment	-0.069	0.400
Financial Planning	0.596	0.000

Since job environment does not significant, the new model is perform by excluding it. Table 10 shows the final model of factors effecting retirement planning. When health increase by 1 unit, retirement planning will increase by 0.249 units. Besides that, when financial planning increase by 1 unit, retirement planning will increase by 0.592 unit. Therefore, the final model for this study as shown in Eq. 2.

$$\hat{Y} = 0.413 + 0.249X_1 + 0.592X_3 \quad (2)$$

where:

$Y$  = Retirement Planning

$X_1$  = Health

$X_3$  = Financial Planning

Table 10: Coefficient of the variables

Model	$\beta$ coefficient	Sig
Constant	0.413	0.556
Health	0.249	0.022
Financial Planning	0.592	0.000

Table 11 shows that the value of *R-Square* was 0.357. It means that 35.7% of total variation in retirement planning can be explained by the two variables which are health and financial planning while remaining 64.3% is explained by other variables.

Table 11: *R-square* of model

<i>R</i>	<i>R-Squared</i>
0.597	0.357

#### 4. Conclusion and Recommendations

As a conclusion, based on multiple linear regression, only two out of three variables are significant which are health and financial planning. Individuals are advised to take good care of their health by having a balanced diet and exercise regularly in order to prevent being attacked by the unwanted diseases. They are also advised to take health insurance to have early protection for the emergency cases in the future or to make health saving account for those who do not take health insurance. This is supported with the past study by Hagen (2018), health and environment are likely to be positively correlated which healthy workers are more likely to retire late.

In addition, individuals need to ensure that they are debt-free before retirement. It is advisable for individuals to have investment property for future saving. Then, individuals are also encouraged to start their retirement saving and ensure they have enough money for their retirement life. The finding is consistent with findings of past study by Choi and Jang (2016), which society cannot guarantee quality of life in retirement unless they invest on their behalf

including private pensions, forcing governments to implement more effective policies aimed at involving citizens in the Financial Planning for Retirement (FPR). The contribution of this study is obvious as the resulting outcomes capitalized as guidelines to identify the factors that affecting retirement planning. Besides that, the study's findings can be used as a continuous framework to improve more outstanding results for retirement planning. The limitation of the study is only involved staff at a public university. Therefore, for future studies, researchers should broaden the scope of the study and involve all private and government sector employees.

## References

- Aisyah A.H. 2019. Retirement adequacy in Malaysia. <https://www.malaysiakini.com/news/489817> (20 August 2020).
- Che Lemah H. 1994. Warga tua di Malaysia: satu kajian terhadap pesara-pesara kerajaan di Wilayah Persekutuan Kuala Lumpur dan Selangor Darul Ehsan. Master Thesis. Universiti Malaya.
- Choi Y.C. & Jang J.H. 2016. Relationships among social policy factors, national competitiveness, and happiness. *Applied Research in Quality of Life* **11**: 1189–1205.
- Fadilah P., Nor Intan Rafidah A.R & Noor Shahidah Shalina A.G. 2011. New retirement policy and impact towards public sector employee retirement preparations: Malaysian perspective. *Proceedings of 2nd International Conference on Business and Economic Research*.
- Firdaos R. 2019. Should the government extend retirement age? <https://www.nst.com.my/opinion/columnists/2019/09/519068/should-government-extend-retirement-age> (5 September 2019).
- Gortz M. 2012. Early retirement in the day-care sector: the role of work conditions and health. *European Journal of Ageing* **9**(3): 187-198.
- Hagen J. 2018. The effects of increasing the normal retirement age on health care utilization and mortality. *Journal of Population Economics* **31**(1): 193–234.
- Hardi E.Y. 2019. Dr M: No need to raise retirement age. <https://www.nst.com.my/news/nation/2019/09/518435/dr-m-no-need-raise-retirement-age> (3 September 2019).
- Hesketh B. & Griffin B. 2010. Retirement Planning Survey 2009: NSW Department of Premier and Cabinet. Research Report P2010\_015.
- Jessica C.C.L. 2016. 92 peratus rakyat Malaysia bimbang dengan keperluan kewangan di hari tua. <https://www.astroawani.com/berita-malaysia/92-peratus-rakyat-malaysia-bimbang-dengan-keperluan-kewangan-di-hari-tua-113628> (17 December 2021).
- Jomo K.S. 2017. Most Malaysians cannot afford to retire. <https://www.thestar.com.my/business/business-news/2017/10/25/most-malaysians-cannot-afford-to-retire/> (20 September 2019).
- Kimiyahalam F. Yap S. & Supramaniam M. 2017. Exploring the scale for measuring retirement planning behaviour in Malaysia. *JOUR* **45** (3): 315-325.
- Mohd Fitri M., Choon C.H., Noor Hidayah A. & Mohd Shahidan S. 2015. Demographic factors associated with retirement planning: A study of employees in Malaysia health sectors. *Asian Social Science* **11**(13): 108–116.
- Moorthy M.K., Chelliah T.D., Chiau S.S., Lai C.L., Ng Z.K., Wong C.R. & Wong Y.T. 2012. A study on the retirement planning behavior of working individuals in Malaysia. *International Journal of Academic Research in Economics and Management Sciences* **1**(2): 54-72.
- Ng N. & Yap E. 2019. Raising retirement age will have serious financial implications say employers. <https://www.freemalaysiatoday.com/category/nation/2019/09/07/raising-retirement-age-will-have-serious-financial-implications-say-employers/> (21 August 2019).
- Norma M. 2019. Dividend from an ageing population. <https://www.nst.com.my/opinion/columnists/2019/04/479798/dividend-ageing-population> (20 Oktober 2019).
- Okolie A.M. 2011. Retirement counselling is necessary. *Nigerian Statement*: 8-17.
- Razak A., Sivanandam H., Fatimah Z. & Allison L. 2019. Bosses against raising retirement age. <https://www.thestar.com.my/news/nation/2019/09/05/bosses-against-raising-retirement-age> (5 September 2019).
- Selvadurai V., Kenayathulla H.B. & Siraj S. 2018. Financial literacy education and retirement planning in Malaysia. *Malaysian Online Journal of Educational Management* **6**(2): 41–66.

- Sima N.A. & Jemon S. 2019. Penglibatan pekerja kurang upaya dalam program Return to Work (RtW), PERKESO. *Jurnal Kinabalu Special Issue Postgraduate Seminar 2019*: 21-32.
- Suridah A. 2017. Kualiti hidup pesara lelaki dan wanita Malaysia: Kajian kes di Besut., *Geografia-Malaysian Journal of Society and Space* **12**(5): 11-21.
- Snell S., Morris S. & Bohlander G.W. (eds). 2018. *Managing Human Resources*. Boston: Cengage Learning.
- Staten I. 2016. A Phenomenological Study of Why Some Americans Chose not to Retire at The Traditional Retirement Age. PhD Thesis. Argosy University.
- Ward E.V. & Dhami M.K. 2016. Editorial: The Aging Decision-Maker: Advances in Understanding the Impact of Cognitive Change on Decision-Making. *Frontiers in Psychology* **7**: 1622.
- Zainudin A. (eds). 2012. *Research Methodology and Data Analysis*. Shah Alam: UiTM Press.

*Faculty of Computer and Mathematical Science*

*Universiti Teknologi MARA Kelantan*

*Lembah Sireh*

*15050 Kota Bharu*

*Kelantan, Malaysia*

*E-mail: amirahfatiniabrahman@gmail.com, nurulfathihahfekri@gmail.com, zafarina@uitm.edu.my\*, shamsunarnie077@uitm.edu.my, reeni683@uitm.edu.my*

Received: 1 December 2021

Accepted: 18 February 2022

---

\*Corresponding author