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Microinsurance to Mitigate Poverty in Malaysia

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Abstract: Access to high-quality, low-cost financial services and products is critical for eliminating imbalanced economic status and poverty. Microinsurance is one of the products that can be recognized as one of the techniques for reducing low-income segment vulnerability. This study aims to determine the importance of microinsurance in mitigating poverty and the relationship between the two. The approach used in this research is an exploratory study by a survey. This study revealed that most low-income households could not afford insurance, while households from M40 and T20 had no problem owning insurance. Furthermore, this study shows that the microinsurance scheme is vital for households of B40 as these people often have difficulties due to financial burdens.

Keywords: Microinsurance, Poverty, Low-income Households

1. Introduction

Insurance services could serve a vital role in reducing risk and mitigating welfare losses resulting from the death of a family member, illness, or loss of income or property [1]. The purpose of insurance coverage aims to mediate the economic burden of diseases; or cost-of-illness families from middle- or low-income households who may find it challenging to pay for medical expenses. In Malaysia, households earning less than RM4,850 fall into the B40 category, called low-income households, and that earning between RM4,850 and M10,959 fall into the M40 class, often called middle-income households. There is also T20, where households earn more than RM10,959 [2].

On the other hand, there has always been an overarching concern for the ordinary citizen, especially the poorer segment of Malaysian society, to afford such privileges called insurance. Consequently, the deep-seated commitment of the Malaysian Government to eradicate poverty and develop human capital

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[3] made microinsurance possible. It aimed to have low-income people who face various challenges in assessing financial products.

1.1 Microinsurance

The connotation of microinsurance gives the idea of general insurance. However, the term 'micro' in microinsurance represents a type of insurance suited to low-income people. [4] defined health microinsurance as the Willingness-to-Pay (WTP) needs and priorities of people in the informal sector who are excluded from other forms of health insurance. Low-income groups of people are those who are particularly prone to stick in deadlock situations of risk aversion and vulnerability. Some indigent households required microinsurance, especially from rural areas, urban poor, and other urban informal sector employees who had no access to any formal social protection schemes instead of those who could afford medical treatments in hospitals like people from wealthy households, government servants or other formal-sector employees [5].

The aim of the microinsurance itself is variant. It can assist people in maintaining their animals and crops, protect them from natural calamities and build enterprises [6]. Some regard microinsurance as a risk management mechanism that the poor can use to compensate for the lack of appropriate state-sponsored social protection programs. Others view it as an opportunity to finance the low-income market at a profit [7]. Bank Negara Malaysia (BNM) welcomes industry-led initiatives envisioned for microinsurance or micro takaful in Malaysia, either collaboratively or individually company level [8].

1.2 Economics Status in Malaysia

As of 2015, Malaysia's poverty rate was 2.9 percent (2.9%), a 1.1 percent (1.1%) decline from 2013 [9]. At the time, Malaysia's total population as of 2015 was 31 million, of which 0.6 percent (0.6%) live below the poverty line, defined by poverty as household income per month less than RM980 [10]. Access to high-quality, low-cost financial services and products is critical for eliminating imbalanced economic status and poverty. This is because risk planning and insurance can help retain financial confidence in the face of high susceptibility [11]. Microinsurance is one of the products that can be recognized as one of the techniques for reducing low-income segment vulnerability.

It is a norm for families of socially disadvantaged or inept to resort to other alternatives in paying OOP payments for health care services when any insurance scheme does not protect them [12]. The other alternatives said by [12] were borrowing money or selling assets from their households. However, these methods could cause damaging long-term effects on their household affairs. Since poor people are unable to afford any of the insurance privileges due to the premium commitment, microinsurance is introduced. It aims to assist those unfortunate households by mediating their financial burdens in an aspect covered by microinsurance. To determine the relationship between poverty and microinsurance and its importance in mitigating poverty in Malaysia, the scope of this research is defined to focus on microinsurance products and services and B40-class household people. Moreover, this research is narrowed and limited to Malaysia, a country in Southeast Asia. This research is used a survey that gathers quantitative data and uses close-ended questions.

2. Materials and Methods

This research is an exploratory study that collects data from a survey. The sampling techniques, sample size and pilot study test, were discussed in this section. Statistical methods and survey analysis techniques were also included to achieve the study’s objectives.

2.1 Data collection and sampling techniques

The population of this research would be people of households of different household income class (B4, M40 and T20). The data collection tool used in this study is a self-administered questionnaire in Microsoft form given to respondents using non – probability sampling approach that incorporates the

snowball sampling technique as its method. Snowball sampling is a technique where the researchers first find a small group of relevant people for the research topic, contact them, and then use them as referrals to get others [13]. The study was conducted from mid-November 2022 to the end of December 2022.

The sample size is considered representative of the actual population for the research study. However, since the population is big, a sample size is needed to distribute the questionnaire. The sample size is calculated using a mathematical formula summarized by [14]. The parameters are N (population size), p (proportion of population expected to select), B (acceptable amount of sampling error or precision) and z (Z-statistics associated with the 95% confidence interval).

$$\boldsymbol{n = \frac{\frac{Npq}{(N-1)B^2} + p(1-p)}{z^2}} \qquad \boldsymbol{Eq.1}$$

2.2 Reliability test

Cronbach's alpha is the measure of the degree to which a set of questions evaluates a single, one-dimensional latent variable in a group of individuals. It is the most common method for assessing the reliability of Likert scale questions in a survey. The formula for Cronbach's alpha coefficient is shown in equation (2) [15] with parameters n (number of items), (the total test score variance) and (item variance).

$$a = \frac{n}{n-1}\left(\sigma_X^2 - \sum_{i=1}^{n} \sigma_i^2\right) / \sigma_X^2 \qquad Eq.2$$

2.3 Descriptive analysis

A descriptive statistic, known as summary statistics, gives an overview summary of information gathered to give a helpful perspective. It is used to display and summarise the survey's respondent information.

2.4 Independent Chi-squared test

The Chi-square test, often known as a distribution-free test, is a non-parametric statistic [16]. It is suitable to test the relationship between two variables, whether they are dependent or independent. In this study, the main variable compared is the respondents' understanding of the significance of insurance. The test of independence was performed, with the hypothesis that the main variable is knowing the importance of insurance against the decision to have insurance. The hypothesis statement for Chi-squared tests is

H_0: Knowing the importance of insurance and owning an insurance are independent.

H_1: Knowing the importance of insurance owning an insurance are NOT independent.

The Chi-squared test statistics are defined as equation (3), where the parameters are χ^2 (Chi-squared), O_i (observed value) and E_i (expected value).

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \qquad Eq.3$$

2.5 Normality and homogeneity test

A normality test is a test to determine whether the sample dataset is normally distributed. The test is required for certain variables before any parametric statistical test, such as the t-test and ANOVA test. The assumptions for the t-test [17] and ANOVA [18] are:

• There is homogeneity of variance

• The distribution is approximately normal

However, the t-test has two other additional assumptions: the data needs to be continuous and randomly sampled from a population, while ANOVA's additional assumption is that the data need to be independent.

2.6 Independent samples t-test

Independent samples t-test, similarly called two-sample t-test or student's t-test, is an inferential test that examines whether there is a statistically significant difference between the means in two unrelated groups [17]. The hypothesis testing for this test is

H_0: One group of the socioeconomic class considered price is more of an important factor in buying an insurance than the other group of socioeconomic class.

H_1: Both group of the socioeconomic class considered price is an important factor in buying an insurance.

In this study, the socioeconomic class compared is B40, M40 and T20 at a significant level of 95%. Each group was compared to the others; thus, three independent t-tests were conducted. The test used a one-tailed test since the differences compare one side in a specific direction.

2.7 One-way ANOVA

A one-way ANOVA is a statistical test that compares the mean difference of one independent variable (categorical data) with one dependent variable (quantitative data). The independent variable used in this study is the respondent's socioeconomic status, consisting of three categories (B40, M40 and T20). One-way ANOVA test compares mean by general and by groups of socioeconomic status at a significant level of 95%. The dependent variable is the amount paid by respondents to their insurance provider. The hypothesis testing is as below

H_0: There is no significant difference in respondents' amount paid to insurance provider based on their socioeconomic status.

H_1: There is a significant difference in respondents' amount paid to insurance provider based on their socioeconomic status.

3. Results and Discussion

The analysis of the findings from survey were showed and discussed in this section.

3.1 Reliability analysis

The pilot survey has collected 20 samples. The reliability of two dimensions in the pilot survey that uses Likert Scale typed questions was measured using Cronbach's alpha reliability test. The reliability was run on Statistical Packages for the Social Sciences (SPSS) to obtain the results, as shown in Table 1. The item in both dimensions included the respondents' perception of essential factors in buying insurance and respondents' satisfaction with insurance. Both Cronbach's alpha values are larger than 0.7 (0.734 and 0.907, respectively, for both dimensions).

Table 1: Reliability test analysis result

Dimension	Number of items	Cronbach's alpha
Insurance factors	6	0.734
Insurance satisfaction	6	0.907

Thus, the overall measure showed acceptable internal consistency. Thus, this questionnaire is reliable for the actual survey. The actual survey has collected up to 60 samples, which is considered low to represent the actual population. However, due to limited time and passive survey distribution, the samples were still considered for this research study.

3.2 Respondent demographic profiles

Table 2 presents the demographic variables gathered in the survey. Among the 60 respondents, 22 males (36.7%) and 38 females (63.3%) participated. There are 25 respondents (41.7%) who came from the B40 household income category, 31 respondents (51.7%) came from M40, and the least came from the T20 group with four respondents (6.7%). Additionally, out of the 60 respondents, the majority were not the family's breadwinner (32 respondents – 53.5%) and the rest 28 respondents (46.7%) were the breadwinners.

Table 2: Demographic background of respondents

Demography		Frequency	Percentage (%)
Gender	Male	22	36.7
	Female	38	63.3
Household Income Category	B40	25	41.7
	M40	31	51.7
	T20	4	6.7
Breadwinner	Yes	28	46.7
	No	32	53.5

N = 60

For all three categories, B40 are those from household that earns less than RM4,849. M40 is people of households that earns in between RM4,850 to RM10,959 whilst T20 is households that earns more than RM10,960.

3.3 Data distribution and variation

Prior to conducting an independent t-test, Levene's test for equality of variance is conducted first to fulfill the assumed homogeneity of variance. According to Table 3, all three independent t-test variable for Levene's test gives a p-value larger than the alpha value (>0.05). Thus, equal variance is assumed for all tests and does not violate the assumption.

Table 3 : Levene's test for equality of variances

Category 1 * Category 2		F	Asymptotic Significance
B40 * T20	Equal variance assumed	1.014	0.323
	Equal variance not assumed	-	-
B40 * M40	Equal variance assumed	2.078	0.155
	Equal variance not assumed	-	-
M40 * T20	Equal variance assumed	0.340	0.855
	Equal variance not assumed	-	-

N = 31

Similarly, the assumption for homogeneity of variances needs to be followed before conducting a one-way ANOVA test. Table 4 gives a p-value of 0.62, which is larger than the test's alpha value (>0.05). Thus, this test has not violated the assumption of homogeneity of variance.

Table 4 : Test of homogeneity of variances in ANOVA

	df1	df2	Asymptotic Significance
How much did you pay for your insurance per month roughly?	2	28	0.620

3.4 Perception towards insurance

Initially, every individual has a different mindset and way of thinking. Thus, there will be various interpretations of the idea of having insurance. Additionally, we must understand the respondent's thinking before arguing that insurance is essential. Based on the survey, there are 37 respondents (62%) know the importance of insurance, while 11 respondents (18%) are the complete opposite, and the rest 12 respondents (20%) are uncertain the significance of insurance.

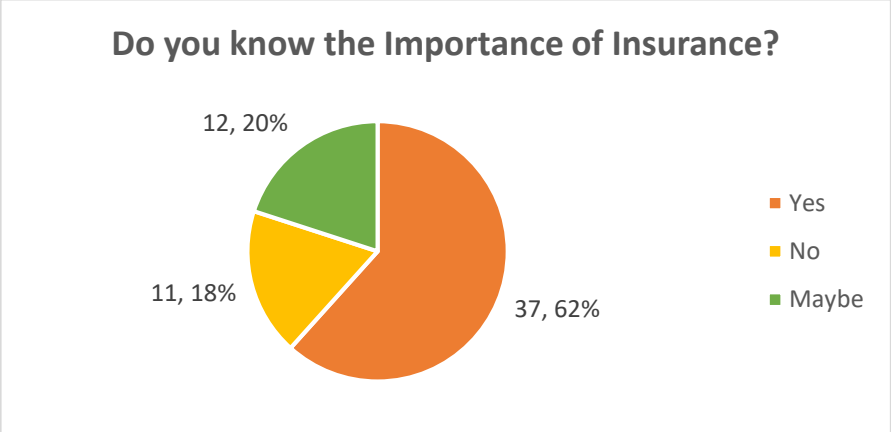

Figure 1: Respondents' response on knowing the importance of insurance

However, is there a reason respondents' discernment towards the importance of insurance differs as an individual? The independence tests (Confidence Interval: 95%) were conducted to determine whether one knows the importance of insurance is related to priorly having an accident, mishap, or difficulties that affected one financially or influenced one having insurance. Based on Table 5, the parameter owns an insurance test for chi-squared and gives a p-value of 0.000 (>0.05). Hence, the null hypothesis is rejected, concluding there is enough evidence to support that one knowing the importance of insurance is dependent or influenced by one owning insurance.

Table 5: Chi-squared test between the knowing the importance of insurance and owning an insurance

Parameter	Value	Asymptotic Significance (2-sided)
Owns an insurance	23.716	0.000

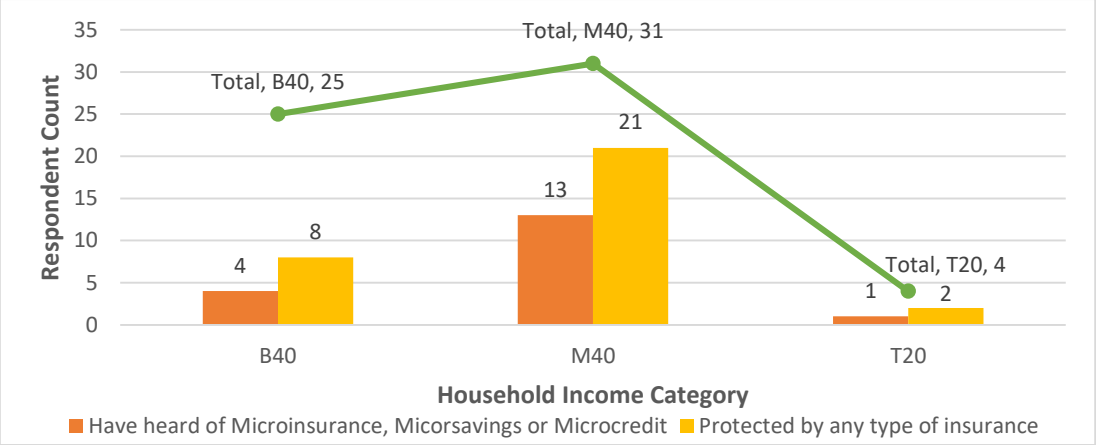

Figure 2: Respondents' household income category versus knowledge on microinsurance and availability of insurance

According to Figure 2, out of a total of 25 respondents from the B40 group, there is only 4 of them (6%) have ever heard of micro-financial services, while only 8 (13%) are insured. Comparatively, 13 out of 31 respondents (22%) from the M40 group and only 1 out of 4 (2%) respondents from T20 are, at the very least well-informed on micro-financial services. At least four counts of the insured were insured by regular insurance instead, assuming all four respondents who had heard of the microinsurance decided to get protected by it.

3.5 Individual's stipulation about owning an insurance.

According to the survey responses, most respondents are inclined to feel that; price, quality of service, brand, policy coverage, knowing someone uses that insurance, and agent or broker – plays a significant role to the decision owning insurance. Based on Figure 3, most respondents (44 counts – 73.3%) agrees that price is important before buying insurance, while 9 (15.0%) think otherwise. Other than that, 50 respondents (83.3%) concurred that quality of service is essential in owning insurance, while seven respondents (11.7%) concurred that it is not. 37 respondents (61.7%) agree that brand is important, while 6 (10.0%) thinks otherwise. Then, 50 respondents (83.3%) believe policy coverage is important, while seven respondents (11.7%) disagree. For knowing someone who uses that insurance provider, there are 37 respondents (61.7%) think it is an important factor, while seven respondents (11.7%) stated otherwise. Lastly, 40 respondents (66.7%) agreed that an agent or broker is important in buying insurance, while 5 respondents think that it does not hold any significance in buying an insurance.

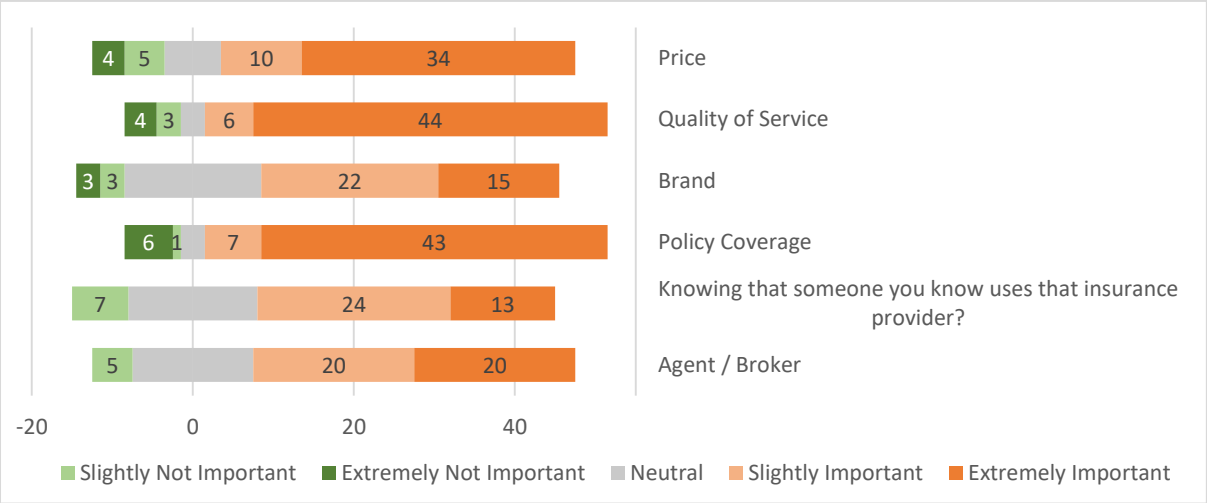

Figure 3: Important factors to decide when buying an insurance

3.6 Correlation of financial capacity of households with important factors in insurance

Does factors of choosing insurance (price, quality of service, brand, coverage policy, knowing your acquaintance of the same insurance provider, agent, or broker) influenced by their household income range category? In order to answer this question, independent t-tests were conducted to determine whether the insured respondents of different income classes considered price an important factor when buying insurance. All three independent t-test gives a p-value of a two-tailed test. Since this study uses the one-tailed hypothesis testing test, the p-value is divided by two to give a one-tailed p-value (asymptotic significance of 1-sided). The survey outcome shows that there are a total of 31 respondents (52%) out of 60 that are protected by any insurance.

According to Table 6, for category B40 against T20, the p-value is 0.0585, which is larger than the alpha value (>0.05). Hence, there is sufficient evidence to accept the null hypothesis, where the B40 category considered price as more of an important factor in buying insurance than the T20 category. Continuing, Table 5 gives a p-value of 0.055 for category B40 against M40. The p-value (0.055) is more significant than the alpha value (>0.05). Similarly, there is enough evidence to support that the B40 category considered price as more of an important factor in buying insurance than the M40 category. Lastly, the independent t-test of category M40 against T20 gives the value of 0.0045. Since the p-value (0.0045) is lower than the alpha value (<0.05), there is no sufficient evidence to support that M40 considered price as more of an important factor in buying insurance than T20. Thus, it concludes that both categories (M40 and T20) considered price equivalently important.

Table 6: Independent t-test result

Category 1 * Category 2	t	df	Asymptotic Significance (2-sided)	Asymptotic Significance (1-sided)
B40 * T20	1.618	27	0.117	0.0585
B40 * M40	-1.626	54	0.110	0.055
M40 * T20	2.775	33	0.009	0.0045

N = 31

3.7 Difference in amount of insurance premium with household income category

According to conventional wisdom, the household's insurance premium amount must be different following their capabilities in a financial capacity. Thus, if a household earns more than another household, the former must have paid a higher insurance premium than the latter. In order to identify these differences, a one-way ANOVA test was performed. Based on Table 7, the p-value is 0.004 (<0.05), which is less than the alpha value. It shows a statistically significant difference in respondents' amount paid to insurance providers based on their socioeconomic status result somewhere in the groups (B40, M40, and T20). Thus, the result indicates rejecting the null hypothesis and accepting the alternative hypothesis.

Table 7: One-way ANOVA test result

How much did you pay for your insurance per month roughly?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48058.424	2	24029.212	6.673	0.004
Within Groups	100824.286	28	3600.867		
Total	148882.710	30			

N = 31

More detailed group-by-group comparisons were made. According to Table 8, a comparison between groups of household income categories gives two values that are significant results. The result showed a significant difference in respondents' amount paid to the insurance provider between B40 with M40 but no significant difference between the group T20 to M40 and B40 with T20.

Table 8: Multiple comparisons of one-way ANOVA

(I) Household Income Category	(J) Household Income Category	Mean Difference (I-J)	Asymptotic Significance
B40	M40	-89.03571*	0.004
	T20	-98.25000	0.114
M40	B40	89.03571*	0.004
	T20	-9.21429	0.977
T20	B40	98.25000	0.114
	M40	9.21429	0.977

*. The mean difference is significant at the 0.05 level.

4. Conclusion

Overall, the research showed there is a weak relationship between microinsurance and poverty. An important finding from this study revealed that among 25 respondents from the B40 category, only four had heard the term microinsurance. Within the B40 as well, only 8 of them were insured by insurance. Hence, a comparatively large percentage (84%) of respondents in low-income households are oblivious to these micro-financial services. This study also proved that respondents' knowledge of the importance of insurance influences their decision to own insurance. Thus, people should be more involved in government initiatives to help low-income households by actively seeking information on official government sites.

Since most people from B40 had troubles in their lives due to financial constraints, the existence of microinsurance can alleviate the burdens. In addition, microinsurance is undoubtedly crucial to low-income households to mitigate poverty. Findings conclude that respondents of B40 who are insured have paid a mean of RM236.25 to their insurance provider, which is statistical difference from the amount paid by M40 and T20. For low-income households, an amount more significant than RM100.00 is a privilege. However, since few of them applied for microinsurance, they paid more than they needed to. To conclude, more campaigns need to be addressed for people of this category to enlighten them about the impact microinsurance could have.

However, this research study could be improved by having a larger sample size to represent the study. To more consolidate this research, the samples should also consider more quantitative types of variables in data collection to allow for a more various parametric tests and an even bigger network to spread the survey more actively.

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