

Analysis on Students' Perspective Toward Academic, Career Aspirations and Destinations After SPM in Muar, Johor

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Abstract

This study examines upper secondary school students' views on their higher education and career goals, as well as the variables that affect their planned career paths after completing the Sijil Pelajaran Malaysia (SPM). Many students find it challenging to make accurate decisions due to the influence of circumstances, social, and personal factors, even though many educational and professional opportunities are available after SPM. It is crucial to understand these difficulties to help students make better-informed, more suitable decisions after SPM. A structured questionnaire was the primary data collection tool in a quantitative study design. A survey method was applied to gather information from secondary school students. Students' after-SPM plans and demographic characteristics were summarised using descriptive statistics. To investigate variations in ambitions and influencing factors across demographic groups, the Mann-Whitney U test and the Kruskal-Wallis H test were used. To find correlations between demographic factors and students' post-SPM choices, the chi-square test of independence was used. To determine the fundamental factors influencing students' post-SPM decision-making, an exploratory factor analysis (EFA) was conducted. The results show that the majority of students (70.7%) intend to pursue further education after SPM, with work coming in second and entrepreneurship the least prevalent choice. Students' academic or career goals and after SPM decisions were not substantially influenced by age, gender, household wealth, or religion ($p > 0.05$). The academic stream had a substantial impact on the factors influencing students' decisions ($p < 0.05$) but was not associated with career goals ($p > 0.05$). Self-efficacy and goal clarity, financial limitations, social influence, knowledge access, and media and environmental impacts were identified as the five main determinants. In general, contextual and personal factors influence after SPM decisions more than demographic traits.

1. Introduction

For upper secondary school students, selecting a suitable academic and career path is crucial, as it affects both the resilience of the national workforce and their employability in future careers [1][2]. This choice becomes especially important for students in Malaysia who are about to take the Sijil Pelajaran Malaysia (SPM), a crucial

national test that opens doors to further education, training, and jobs. After completing SPM, students usually have several options, such as returning to school, starting their own business, or entering the workforce. Students must balance their personal interests and goals with academic achievement, financial capability, and labour market realities while also negotiating external influences from friends, family, and broader societal expectations, making these decisions inherently difficult [3].

The transition from education to employment is further complicated by rapid technology breakthroughs, fluctuating economic objectives, and the volatile structure of the Malaysian labour market. Although a crucial indicator of academic success, the SPM mainly assesses students' proficiency in fundamental subjects, including science, math, English, and Bahasa Melayu, in addition to elective courses according to their hobbies and future professional goals. However, it lacks in capturing students' entire potential, which includes soft skills, creativity, and entrepreneurial abilities, all of which are becoming more and more crucial in a competitive and unpredictable job marketplace [3]. Because of this, students may find it difficult to choose appropriate career paths, particularly those from disadvantaged families who might not have access to resources, career counselling, or exposure to a variety of after-SPM prospects [4].

Adolescents are particularly vulnerable to hesitation when choosing their academic and career pathways, as they often lack the experience and confidence to make informed choices. According to earlier studies, a variety of contextual and personal factors, including self-efficacy, financial resources, social support networks, information accessibility, and environmental factors, affect students' career decisions [1]. Although it is widely believed that demographic factors, including age, gender, household income, and educational background, have a significant impact, research indicates that their direct influence is rather small [5]. Furthermore, empirical research on the relationships between demographic characteristics and students' after-SPM plans in Malaysian upper secondary schools remains limited.

Understanding the variables that influence students' academic and professional goals is essential, given Malaysia's growing problems with youth unemployment, skill mismatch, and economic instability. In addition to academic achievement, social and cultural influences, the availability of guides and role models, and exposure to career choices through internships or guidance programs all have an impact on students' decision-making processes [5]. Understanding these elements can help educators, counsellors, and policymakers deliver more effective interventions, helping students make more confident post-SPM decisions and align their goals with the demands of the job market.

This research intends to explore the academic and professional aspirations of Malaysian upper secondary students, with an emphasis on their projected post-SPM trajectories. Through analytical methods like descriptive statistics, non-parametric tests, and exploratory factor analysis (EFA), the study specifically aims to (i) evaluate the influence of demographic characteristics on students' academic and career aspirations, (ii) investigate relationships between these characteristics and post-SPM intentions, and (iii) identify the major factors influencing students' preferences. The study offers a greater understanding of how Malaysian students create future academic and professional pathways by examining both contextual and demographic factors. This helps to inform specific academic and career counselling tactics.

2. Methodology

This study examines the academic and professional aspirations of secondary school pupils in Muar, employing a quantitative approach. A structured questionnaire was used to gather data, and to achieve the study's objectives, descriptive statistics, non-parametric tests, Chi-square tests, cross-tabulation, and exploratory factor analysis (EFA) were employed for analysis.

2.1 Data Collection

Data were gathered from Form Four and Five students of Sekolah Menengah Kebangsaan Agama Pagoh and Sekolah Menengah Tun Perak by utilising a structured questionnaire, as it is an empirical method for resolving study's issues, testing theories, and assessing results. The questionnaire consisted of three sections:

- Part A: Demographics (age, gender, academic stream and income level of the household)
- Part B: Perspectives toward academic and career aspirations
- Part C: Factors that influence students' decisions

A minimum sample size of 358 students would have been required by Cochran's formula [6]. These students could have been chosen at random from a total enrolment of 5,312 pupils, giving us a 95 percent confidence level with a 5% margin of error. The sample size computation formulas as in equation (1)[6].

$$n_0 = \frac{z^2 p(1-p)}{e^2} \quad (1)$$

where n_0 is the initial sample size, e is the acceptable margin of error, z is the standard normal value corresponding to the selected confidence level, and p is the estimated percentage of the population with a specific trait.

Table 1 presents the data descriptions of this study included demographic information on gender, age, race, school type, academic stream choices, family income, and their plans after SPM.

Table 1 Data Description

Variables	Descriptions
Gender	Male or Female
Age	16 or 17 years old
Race	Malay, Chinese, Indian, Others
Academic Stream	Pure Science, Arts/Commerce, Technical/Vocational, Others
Monthly Household Income	<RM1500, RM1500-RM3000, >RM3000
Plans	Continue (Study, Career, Business)

2.2 Pilot Study

A pilot study involving 20 participants was conducted from November 10 to 14, 2025, to ensure consistency and reliability of data.

2.3 Reliability Test

Reliability of the instrument was evaluated using Cronbach's alpha. An acceptable criterion cut-off value of 0.7 was used, indicating that the dimensions of the scale consistently measured what it was intended to [7]. The formula as in Equation (2) shows the reliability test [6].

$$\alpha = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum_{i=1}^k S_i^2}{S_T^2} \right) \quad (2)$$

Where α represents the Cronbach's Alpha reliability coefficient, k is the number of items in the scale, S_i^2 is the variance of each individual item, and S_T^2 is the total variance of the scale.

2.4 Descriptive Analysis

The primary traits of the population and data under study were summed together using descriptive statistics. Factors related to demographics. We collected data on gender, age, race, household income, and academic stream. Students' academic evaluations, as well as their job aspirations and influencing variables after the SPM, were described using descriptive statistics, including frequency, percentage, mean, and standard deviation. The study's findings lay out the framework for further deductive statistical analysis by extending general trends and relative patterns seen in this data.

2.5 Mann-Whitney U Test

Additionally, the Mann-Whitney U Test was used to identify significant variations in perspectives on academic and career aspirations, as well as influencing factors, between two independent groups, either gender (male and female) and age (16 and 17 years old). This study was conducted because the data had a non-normal distribution and were evaluated using a Likert scale. This test considers the overall performance of boys and girls to determine whether gender affects their decisions about future academic or career paths. The Mann-Whitney U test formula can be shown as in Equations (3)[8] and (4)[8].

$$U_A = n_A n_B + \left(\frac{n_A (n_A + 1)}{2} \right) - R_A \quad (3)$$

$$(4)$$

$$U_B = n_A n_B + \left(\frac{n_B (n_B + 1)}{2} \right) - R_B$$

Where n_A and n_B represents the sample sizes of the first and second independent groups, R_1 is the sum of rankings for the first group and U is the Mann-Whitney test statistic.

2.6 Kruskal-Wallis H Test

The Kruskal-Wallis H test was used to assess differences in students' after-SPM choices and perspectives on academic and career aspirations across groups (based on age, race, and academic stream) as independent variables. For ordinal data and for skewed or kurtotic distributions, it serves as a nonparametric alternative to the one-way ANOVA. This model illustrates how students' thoughts and decisions regarding their post-SPM future were influenced by their unique demographic characteristics. Equation (5) expresses the Kruskal-Wallis H test [9]:

$$H = \left(\frac{12}{N(N+1)} \sum_{i=1}^k \frac{R_i^2}{n_i} \right) - 3(N-1) \quad (5)$$

where R_i is the sum of ranks for the i - th group, n_i is the sample size of the i - th group, H is the Kruskal-Wallis test statistic, and N is the total number of observations across all groups.

- H_0 : Age, Race, or Type of Academic stream does not significantly influence the views of secondary students in Muar regarding their academic and career goals after SPM.
- H_1 : Age, Race, or Type of Academic stream significantly influences the perspectives of secondary students in Muar on their academic and career goals after SPM.

2.7 Chi-Square Test and Cross-tabulation

The study also applies Cross-tabulation of students' plans after-SPM and Category Demographics. Subsequently, the Chi-square test of independence was used to determine whether there were any significant relationships between demographic background (gender, race, academic stream, and family income) and the objectives that students had after SPM examinations. This type of analysis, which similarly strengthens connections among basic elements, facilitates planning using statistical evidence. The Chi-square formula is as shown in Equation (6)[10]

$$\chi^2 = \frac{\sum (O_i - E_i)^2}{E_i} \quad (6)$$

where O_i is the actual frequency, E_i is the predicted frequency under the assumption that there is no relationship between the variables, and χ^2 is the Chi-square test statistic.

2.8 Exploratory Factor Analysis

The study has employed factor analysis (EFA) to identify the underlying dimensions that influence the academic and career-choice goals of senior secondary school students as they prepare for after-SPM education. This process is analogous to extracting a few common and important factors by reducing the dimensionality of several observed variables into a set of correlated predictors based on their covariance. EFA of the equivalent question items in the current study revealed core dimensions encompassing perceived pros and cons, family and friends' influence, expertise, and social media. Based on EFA, this study identifies the major factor that transcends students' decision-making tendencies. The equation (7) shown is a formula of exploratory factor analysis [11].

$$\gamma_j = \lambda_{j1}\lambda_1 + \lambda_{j2}\lambda_2 + \dots + \lambda_{jm}f_m + \varepsilon_j \quad (7)$$

where f stands for the latent factors that were extracted from the investigation, ε_j is the error term or unique variance, γ_j stands for the observed variables, λ and is the factor loading matrix.

3. Results and Discussion

3.1 Pilot Study

Table 2 presents the 36-item instrument was filled out by respondents, including those in the study population sample. Reliability analysis indicated that Cronbach's alpha was 0.932, indicating excellent internal consistency for this scale.

Table 2 Reliability Analysis on Pilot Study

Cronbach's Alpha	N of items
0.932	36

3.2 Reliability Test

Table 3 presents the internal consistency reliability of the measures that was assessed using Cronbach's Alpha. The 11-item Academic and Career Ambition Scale had high internal consistency (Cronbach's Alpha = 0.955, Cronbach's Alpha after standardization of items = 0.956). Values higher than 0.90 are considered strong indicators of dependability, indicating that items can be subjected to more complex statistical experiments, as they constantly measure students' academic and professional expectations [7].

Table 3 Reliability Analysis

Cronbach's Alpha	N of items
0.955	11

Meanwhile, Table 4 displays reliability analysis of factors influencing students' choices of academic and career paths, with excellent reliability (Cronbach's alphas and, moreover, a reliability of 0.981 for the total scale, comprising 25 items). The high values of these dimensions demonstrate that the scale has an ability to measure the constructions in a consistent manner, as expected, as well as an indicator of good internal reliability [7].

Table 4 Reliability Analysis

Cronbach's Alpha	N of items
0.981	25

3.3 Demographic Analysis

Fig. 1(a) and Fig. 1(b) present that the study's sample was made up of 151 males (45.1%) and 184 females (54.9%), whose age ranged from 16 (45.7%) to 17 years old (54.3% respectively). Most of the respondents were Malay (77.3%), followed by Indian (13.7%), Chinese (7.5%) and others (1.5%). In addition, Fig. 2 (a) and Fig. 2 (b) show the academic streams of the participants were Pure/Social Science (38.5%), Arts/Accounting (32.8%), Religious (22.4%), and Other (6.3%). Most of the family income group fell between RM1,501 and RM3,000 (48.1%), while 27.5% earned less than RM1,500, and 24.5% earned more than RM3,000. In terms of after-SPM plans, Fig. 3 (a) and Fig. 3 (b) describe 70.7% aimed to pursue higher studies, followed by 20.9% who wanted to work and the remaining 8.4% intended to get involved in business.

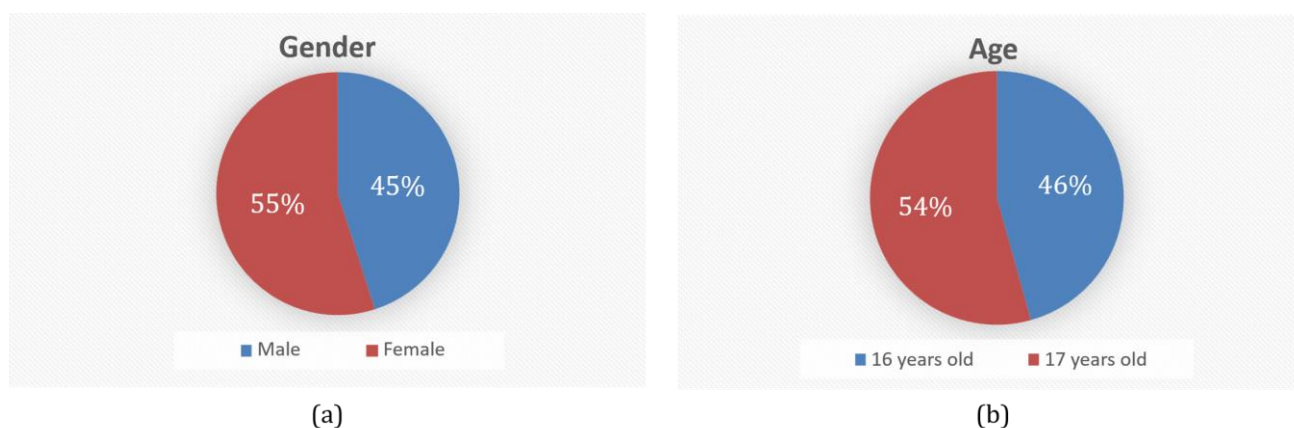


Fig. 1 Distribution of respondents by (a) Gender and (b) Age

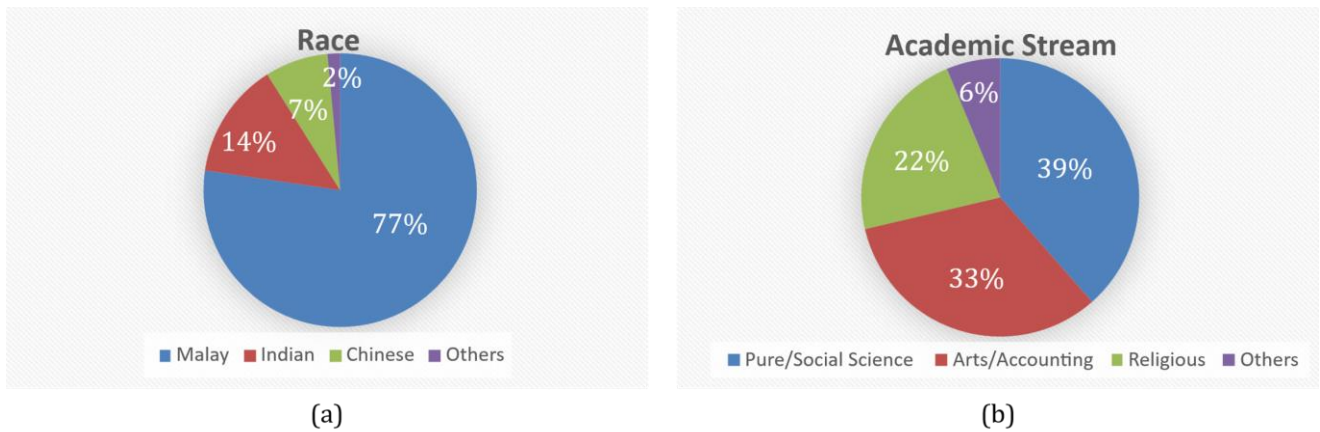


Fig. 2 Distribution of respondents by (a) Race and (b) Academic stream

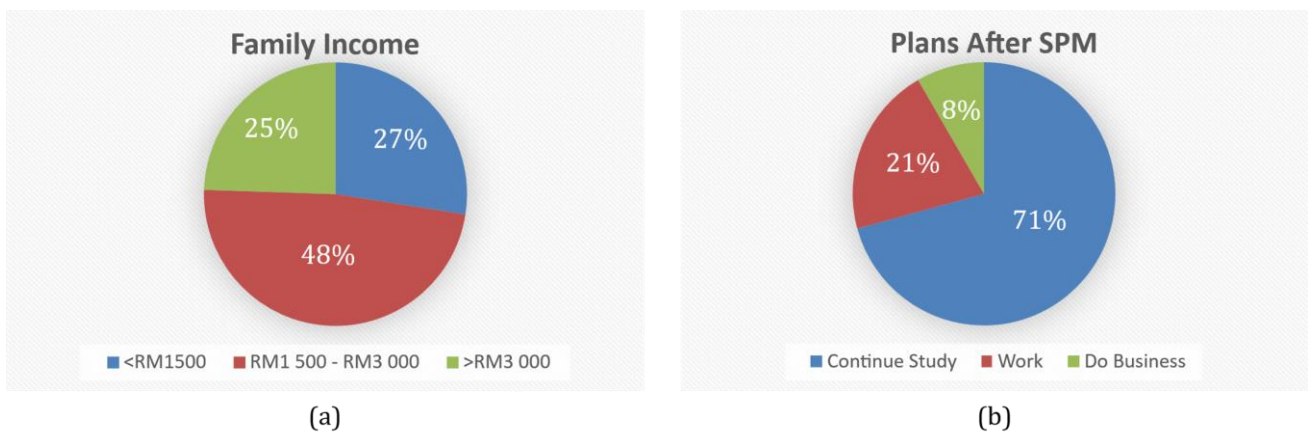


Fig. 3 Distribution of respondents by (a) Family Income and (b) Plans After SPM

3.4 Perspective Toward Academic and Career Aspirations

Table 5 presents the Mann–Whitney U test confirmed the absence of statistical differences in academic and career expectations based on students' age and gender, yielding p -values 0.966 and 0.442, respectively. The comparisons of mean ranks indicate negligible group differences, as students of various ages and genders possess limited specific job objectives. One possible reason for these results is that young people of different ages and genders typically face the same school or college setting, academic requirements, and career counselling tasks [12]. This means that they adjust their expectations regardless of age or gender. Failed attraction-related expectations or aspirations, including satisfaction, interests, and self-efficacy, typically serve as stronger predictors of expectations than demographic indicators, often eradicating age and gender based disparities in anticipation outcome [13].

Table 5 Mann-Whitney U test on Perspective Toward Academic and Career Aspirations

Variable	P -value	Decisions
Age	0.966	Not Significant
Gender	0.442	Not Significant

Similar results were found in table 6 presents based on religion, academic stream, family household income, and after-SPM plans, where no differences were observed in students' aspirations, as indicated by Kruskal–Wallis H tests with p -values of 0.165, 0.362, 0.766, and 0.145, respectively. As such, variation across social groups and demographic styles has a stronger influence on students' aspirations. For instance, this leads to critical decisions about life or growth within a particular network, showing how educational and life decisions may be influenced by broader social circumstances rather than by particular demographics such as income or religion [12].

Table 6 Kruskal-Wallis H test on Perspective Toward Academic and Career Aspirations

Variable	<i>P-value</i>	Decisions
Religion	0.165	Not Significant
Academic Stream	0.362	Not Significant
Family Income	0.766	Not Significant
Plans after SPM	0.145	Not Significant

The findings in Table 7 were supported by the Chi-Square test of independence, which showed no relationship between the demographic data and the distributional characteristics after SPM. Consequently, the findings confirm the absence of significant demographic influences on students' academic and career aspirations, which are attributed to prevalent educational practices, societal expectations, and motivational constraints.

Table 7 Chi-Square Test of Independence between Demographic Factors and Students' plans After SPM

Variable	χ^2	<i>P-value</i>	Decisions
Age	0.445	0.801	Not Significant
Gender	0.275	0.871	Not Significant
Religion	10.765	0.096	Not Significant
Stream	5.353	0.499	Not Significant
Family Income	1.298	0.862	Not Significant

3.5 Factors Influencing Students' Decisions

Table 8 presents Mann-Whitney U test results, indicating no significant differences in influencing factors by age ($p = 0.115$) or gender ($p = 0.425$). However, there were small dissimilarities in the mean ranks. This suggests that the factors influencing pupils' choices are consistent across different age groups and genders. It could be due to exposure to the same type of information sources, guidance, counselling, and peer influence in these groups, which might standardize the perceived importance of different decision criteria [13].

Table 8:**Table 8** Mann-Whitney U test on Factors Influencing Students' decisions

Variable	<i>P-value</i>	Decisions
Age	0.115	Not Significant
Gender	0.425	Not Significant

Table 9 presents the Kruskal-Wallis H test, which also indicates no significant differences between influencing factors and religion ($p = 0.834$), family income ($p = 0.759$), and the expected outcome after the decision ($p = 0.702$). There was also a significant difference between academic streams ($p = 0.007$), indicating that students from different academic streams consider different aspects when deciding on their after-SPM plans. This supports a previous study that suggests students' academic backgrounds and familiarity with a variety of subjects affect their self-efficacy, professional knowledge, and ability to assess external influences on their decision-making [13]

Table 9 Kruskal-Wallis H test on Factors Influencing Students' decisions

Variable	<i>P-value</i>	Decisions
Religion	0.834	Not Significant
Academic Stream	0.759	Not Significant
Family Income	0.702	Not Significant
Plans after SPM	0.007	Not Significant

To identify the core factors influencing students' academic and career decision-making after SPM, an exploratory factor analysis (EFA) was conducted. The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy

and Bartlett's Test of Sphericity were used to assess whether the data were suitable for EFA prior to factor extraction. Based on Table 10, the KMO value of 0.990 indicated excellent sampling adequacy. Additionally, Bartlett's Test of Sphericity ($\chi^2 = 8328.676$, $df = 300$, $p < 0.001$) indicated that the factor analysis fit the data and confirmed the presence of adequate correlations among the variables.

Table 10 KMO and Bartlett's Test of Sphericity

Test	Value
Kaiser-Meyer-Olkin (KMO)	0.990
Bartlett's Test of Sphericity	8328.676
Degree of Freedom (df)	300
Significant p -value	0.000

Table 11 summarises the overall variation explained by the retrieved components. The five factors evaluated together explain 76.894% of the total variance, demonstrating the model's strong predictive ability. The first factor, Self-Efficacy and Goal Clarity, explains 18.245% of the variance, emphasizing the significance of students' self-assurance, goal clarity, and preparedness to make decisions after SPM. Concerns about family finances and the expense of further education are reflected in the second factor, Financial Constraints, which accounts for 17.300% of the total. Social Influence, the third factor, accounts for 14.577% of the variance and highlights the influence of parents, teachers, counsellors, and peers in determining students' decisions. Knowledge and information access, the fourth factor, accounts for 14.402% of the variance, underscoring the importance of awareness and understanding of the various career and educational options. The fifth element, Media and Environmental Influence, accounts for 12.371%, indicating that students' aspirations are also significantly influenced by their exposure to media and broader environmental contexts [13].

Table 11 Kruskal- Total Variance Explained from Exploratory Factor Analysis

Label	Cumulative %
Self-Efficacy and Goal Clarity	18.245
Financial Constraints	35.544
Social Influence	50.121
Knowledge and Information Access	64.523
Media and Environmental Influence	76.894

Fig. 4 shows the retention of five factors. After the fifth component, where the eigenvalues start to level out, the plot clearly shows an "elbow." According to this pattern, most of the variance in the data is explained by the first five components, with the remaining components providing no additional explanatory value and likely reflecting random noise. Consequently, the scree plot confirms the reliability of the five-factor structure identified in this investigation and supports retaining the factors.

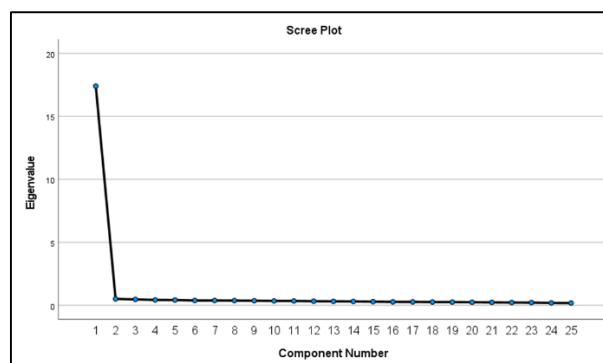


Fig. 4 Scree Plot

4. Conclusion

The theories, career aspirations and influencing factors of students from secondary schools in Muar, Johor were investigated in this study. Descriptive statistics, Chi-square tests, nonparametric tests, cross-tabulation, and exploratory factor analysis (EFA) were applied to analyse data from a sample of 358 students collected via a structured questionnaire. Results indicate that social media exposure, personal acquaintances, family and school environment, and demographic characteristics influence students' decisions; however, gender, age, and type of academic orientation track are also relevant. Our findings highlight the importance of targeted career and educational counselling to facilitate informed decision-making. Overall, the study identified several factors that influence students' plans after SPM and offered practical recommendations to parents, schools, and policymakers to enhance student motivation and support.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Nik Mufidah Hasanah Nik Izan; **solving the governing equation:** Nik Mufidah Hasanah Nik Izan, Siti Noor Asyikin Mohd Razali; **data collection:** Nik Mufidah Hasanah Nik Izan; **analysis and interpretation of results:** Nik Mufidah Hasanah Nik Izan, Siti Noor Asyikin Mohd Razali; **draft manuscript preparation:** Nik Mufidah Hasanah Nik Izan, Siti Noor Asyikin Mohd Razali. All authors reviewed the results and approved the final version of the manuscript.

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