CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Sekaran (2003) stated that *research methodology* is an organized, systematic, critical, scientific inquiry or investigation into a specific problem to find answers or solutions. In this chapter, the researcher describes the method used in conducting the research study. Firstly, the research design, study location, population, and sample selection are determined. Then, the sampling procedures, instruments and scoring are described in detail. It is followed by a detailed explanation of the validity and reliability of the instrument. Then, it is continued with the data collection and data analysis. Lastly, exploratory data analysis is conducted, and the chapter is summarized.

3.2 Research Design

This study aims to investigate peers' influences on tobacco use and academic motivation in lower secondary school students in Pasir Mas, Kelantan. This research is quantitatively based where the information and data on the research variables were obtained through instruments and scales thus represented through scoring. This research will determine the relationship between the independent variables, peer influences on tobacco use, and the dependent variables, academic motivation. The research design is cross-sectional, which describes the linear relationship between two or more variables without the hint

of attributing one variable's effect to another. In a cross-sectional study, the investigator measures the outcomes and exposures of the participants of the study at the same time. The data was collected through a survey.

3.3 Research Procedure

The research procedure can be explained in stages, from obtaining the approval of the research proposal until the data analysis is made. First, the researcher applied to the Educational Research Application System (eRAS 2.0) to obtain approval from the Ministry of Education to conduct this study (see Appendix 1. I am requesting confirmation of evidence as a student via a letter from the university to carry out the study, see Appendices 2 and 3. Next, the researcher obtained information on lower secondary school students consisting of form one and form two from Pasir Mas Education Office, refer to Appendix 4.

Finally, the researcher likes questionnaires as an instrument because they can be distributed and collected easily (see Appendix 5. The researcher will assemble a small group of students in the classroom. Then, the researcher will let them take the survey and offer help or clarification if they have questions. It ensures that their involvement is of crucial importance in the process of acquiring high-quality data. The data was collected in April 2022. The data will be recorded in the Excel file and be accessed by the researcher only. Data were analysed using Statistical Packages for Social Sciences (SPSS version 28.0 for windows). The study results were analysed, discussed, and recommended for each relevant element.

3.4 Location of The Study

In this research, the location of the study was the secondary school in Pasir Mas, Kelantan. Kelantan is Malaysia's third most populous state, with 37 schools plagued by disciplinary issues and drug abuse. The Ministry of Education Malaysia has identified 402 schools nationwide as the hotspot for disciplinary and drug problems. Besides, this population of interest is the most accessible to the researcher.

3.5 Population and Sampling

3.5.1 Population

The population of interest is the study's target population that it intends to study or treat. According to Sekaran and Bougie (2010), population refers to the entire group of people, events, or things of interest for which the researcher wants to make inferences. 392 students from 18 secondary schools in Pasir Mas are illustrated in Table 3.1.

Table 3.1: The total number of school students in Pasir Mas

No	Name of school	Form 1		Total	Form 2		Total
		Boys	Girls		Boys	Girls	
1	Sekolah Menengah Kebangsaan Chetok	55	65	120	62	52	114
2	Sekolah Menengah Kebangsaan Bunut Susu	50	59	109	76	48	124
3	Sekolah Menengah Kebangsaan Kangkong	37	54	91	47	48	95
4	Sekolah Menengah Kebangsaan Tengku Panglima Raja	96	86	182	85	85	170
5	Sekolah Menengah Kebangsaan Meranti	92	74	166	53	74	127

6	Sekolah Menengah Kebangsaan Pasir Mas	51	49	100	43	68	111
7	Sekolah Menengah Kebangsaan Tendong	74	84	158	72	42	114
8	Sekolah Menengah Kebangsaan To' Uban	59	62	121	62	67	129
9	Sekolah Menengah Kebangsaan Sri Kiambang	78	90	168	78	84	162
10	Sekolah Menengah Kebangsaan Sultan Ibrahim (1)	141	103	244	89	122	211
11	Sekolah Menengah Kebangsaan Sultan Ibrahim (2)	71	57	128	69	54	123
12	Sekolah Menengah Kebangsaan Gual Periok	47	37	84	38	48	86
13	Sekolah Menengah Kebangsaan Kedondong	32	36	68	49	32	81
14	Sekolah Menengah Kebangsaan Kubang Bemban	66	114	180	33	115	148
15	Sekolah Menengah Kebangsaan Baroh Pial	65	60	125	58	47	105
16	Sekolah Menengah Kebangsaan Kampung Dangar	44	37	81	53	31	84
17	Sekolah Menengah Kebangsaan Tanjong Bunga	44	41	85	47	31	78
18	Sekolah Menengah Kebangsaan Rantau Panjang	91	101	192	93	97	190

Source: Pasir Mas District Education Office (2022)

This research population is lower secondary students in Pasir Mas, Kelantan. The total number of students between one and two is 2 252. According to the Malaysian Ministry of Education, form three students are not permitted to participate in this study because they will face the PT3 test.

3.5.2 Sample

Sampling is the process of selecting a statistically representative sample of individuals from a population of interest (Kamangar et al., 2013). A good

sample is a statistical representation of the population of interest that is large enough to answer the research question (Hulley et al., 2013). Sampling is essential for research studies because the population of interest is usually too large for any research project to include participants. Besides, according to Hair et al. (2013), the sample should be representative of the population and have enough respondents-the greater the number of participants, the greater the validity and reliability of the results. Furthermore, determining the proper sample size is a significant concern because too large sample sizes waste time and resources.

According to Zikmund (2000), sampling is adequate to represent the entire population for the following reasons: i. pragmatic reasons, such as budget and time constraints, make it impossible to collect all the information, ii. the sample is adequate, accurate, and reliable information on the research findings, and iii. damage the unit being tested. The researcher chooses simple random sampling for this study because the Pasir Mas district has 18 schools with varying student populations. Simple random sampling chooses a smaller group (the sample) from a larger group of all participants (the population). It is one of the most basic systematic sampling methods for obtaining a random sample.

One of the four probability sampling techniques is simple random sampling, including systematic, stratified, and cluster sampling. The technique is based on using a selection method that gives each participant an equal chance of being chosen, giving each participant the same probability of being chosen. Because the process is based on probability and a random selection, the smaller

sample is more likely to represent the total population and be free of researcher bias. This method is also known as a chance method.

The questionnaire distribution to the selected respondents used Krejcie and Morgan's (1970) table to determine the sample size in Table 3.2.

Table 3.2: Table for Determining Sample Size of a Known Population

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

The sample determination of this study used Krejcie's table and Morgan's (1970), a total of 392 respondents among lower secondary schools in Pasir Mas, Kelantan. Roscoe (1975) revealed that a study's appropriate sample size ranged from 30 to 500. While the sample size is too large, i.e., more than 500, problems

will arise, resulting in an error. Meanwhile, Sekaran (2000) observed that because the sample size is too large, even if the relationship is weak, it will reach a significant level. This will have an impact on the accurate picture of the population. Therefore, he proposed that a sum that is neither too small nor too large (500) is ideal for a study. In the same way, the larger size is required to take responsibility for the possibility that respondents will not return the questionnaire to the researcher.

3.6 Instrument

Questionnaires are a handy survey tool that allows large populations to be assessed relatively quickly (Jones et al., 2013). The researcher uses the self-administered questionnaire to measure the variables of peer influences on tobacco use and academic motivation. The researcher pointed out two studies closely related to the independent variables chosen for this study: the influences of peers on tobacco. The researcher did not find the most suitable questionnaire related to both variables. So, the researcher modified the instruments based on the findings of several previous studies.

Firstly, the researcher refers to the study conducted by Siti Raba'ah Hamzah et al. (2013) entitled The Influence of Peers on the Hedonistic Behavior of IPT Youth in Malaysia which uses The Peer Inventory by Armsden and Greenberg (1987). Secondly, a study entitled The Relationship Between Peer Popularity and Self-Esteem with Sexual Behavior Attitudes among Adolescents Pregnant Out of Wedlock conducted by Nor Jumawaton Shahruddin et al. (2017)

uses the Inventory of Peer Stress, Popularity and Compliance (Santor, Messervey and Kusumakar, 2000).

Subsequently, the researcher refers to a study conducted by Muhammad Ikmal Rezal Othman et al. (2020) on the Relationship between Intrinsic and Extrinsic Motivation with Academic Achievement of UTHM Students using The Motivational Inventory by Ouyang et al. (2008) to adapt an instrument for dependent variables, which is Academic Motivation. The sources of questions in the questionnaire are illustrated in Table 3.3.

Table 3.3: The Source of Questionnaire

Section	Categories	Sources	Total Items
Section A Demographic Profile	✓ Age ✓ Gender		2
Section B Influences of Peers on Tobacco	✓ Communication ✓ Trust ✓ Isolation	The Peer Inventory by Armsden and Greenberg (1987) adapted by Siti Raba'ah Hamzah et. al. (2013) The Inventory of Peer Stress, Popularity and Compliance (Santor, Messervey and Kusumakar, 2000) adapted by Nor Jumawaton Shahruddin et. al. (2017)	23
Section C Academic Motivation	- Intrinsic motivation - Extrinsic motivation	The Motivational Inventory by Ouyang et. al. (2008) adapted by Muhammad Ikmal Rezal Othman et. al. (2020)	59
		TOTAL OVERALL	84

The questionnaire is divided into three sections: A, B, and C (Appendix C). Section A includes four questions about age, demographic information, and socioeconomic status. Part B comprises 30 questions divided into three categories: communication, trust, and isolation. The questionnaire uses the five-point Likert scale as the rating scale, and respondents must select one of the seven response categories. Meanwhile, part C consists of 25 questions about intrinsic and extrinsic motivation. The rating scale in the questionnaire is a seven-point Likert scale, and respondents must choose from seven categories of response options as in the Likert Scale. The survey questions used in this study are written in Malay. Because Malay is the primary language of Malaysians, it is necessary to translate the original English version into Malay to make it meaningful to Malaysian culture and achieve equivalent or comparable results.

Furthermore, the respondents for this study, the lower secondary school students, will be able to understand each item thoroughly. Since the researcher modified this questionnaire, a pilot test will be held on 17 January 2022. 30 students will be chosen as a sample to answer the questionnaire and will not participate in the final survey. The Cronbach Alpha coefficient will be calculated to determine the instrument's reliability. An expert in research methodology will do content validity. An English and Malay specialist will be called to double-check the instrument's wording. The questionnaire, EPRD letter of approval, and Pahang state education office will all be printed together in a booklet form for the survey after the final edition is completed.

3.7 Data Collection

The questionnaire was referred to the authorities to get approval to conduct the research. The permission from the Ministry of Education Malaysia will be applied through The Expert Review Panel for Diagnostics (ERPD). Permission from the state department of education at Pahang will also be applied.

Respondents were given a booklet of questionnaires. Then, they were given a brief explanation about the questionnaire. Specific instructions were given by the researcher requiring the respondents to answer all the questions as honest as possible. Furthermore, the respondents did not require revealing their names on the questionnaire to preserve their anonymity and confidentiality. The respondents were required to fill in some demographic information about themselves.

The researcher emphasized that respondents will not be identified in any survey findings presentation, discussion, or publication. Respondents were also told that there were 'no right' or 'wrong' answers since the questionnaire was only an opinion. Later, the respondents were requested to answer all the questions, which took about 20-25 minutes. During the process, the researcher was always available to help and guide the respondents who encountered difficulties concerning the questionnaire. Upon completing the questionnaire, the researcher debriefed and thanked the respondents for their cooperation in participating in the survey. All questionaries were collected back on the spot, and data were further analyzed.

3.8 Data Analysis

The data collected from the respondents will be key into the Statistical Package for Social Science Version 17.0 (SPSS) for data analysis. SPSS can help interpret all kinds of data into useful information. The data analysis is descriptive when the data is described and summarized into meaningful information.

3.8.1 Pearson Coefficient Correlation Analysis

Correlation coefficient (r) or Pearson correlation was used to find the relationship between the dependent and independent variables. It is to answer the first research questions of this study. A correlation coefficient gives two information about the relationship between two variables: the direction of the relationship and its magnitude. It will determine the relationship between the influences of peers on tobacco use and academic motivation in lower secondary school students in Pasir Mas, Kelantan.

A correlation coefficient gives two information about the relationship between two variables: the direction of the relationship and its magnitude. The correlation coefficient ranges between -1.00 to +1.00, and the +ve or –ve sign denotes the correlation direction. The positive sign indicates a direct correlation between two variables, whereas the negative sign indicates a negative correlation between two variables. A hypothesis test on the correlation between dependent and independent variables is performed to test the significance of the linear relationship. A correlation of 0.5 or above must be achieved to be significant. The correlations will be stronger when the number moves closer to the one value. The

interpretation of strength and results generated from the Pearson correlation analysis is based on Guildford's Rule of Thumb. Guildford's Rule of Thumb is shown and illustrated in Table 3.4.

Table 3.4: Guildford's Rule of Thumb

Size of Correlation	Interpretation
0.90 to 1.00 (-.90 to –1.00)	Very high positive (negative) correlation
0.70 to 0.90 (-.70 to -.90)	High positive (negative) correlation
0.50 to 0.70 (-.50 to -.70)	Moderate positive (negative) correlation
0.30 to 0.50 (-.30 to -.50)	Low positive (negative) correlation
0.00 to 0.30 (.00 to -.30)	Little if any correlation (weak)

3.8.2 T-Test

A *t-test* is an inferential statistic used to see if there is a significant difference in the means of two related groups. It is mainly used when the data sets, such as the outcome of flipping a coin 100 times, follow a normal distribution and have unknown variances. A *t*-test is a hypothesis testing tool that allows you to test an assumption that applies to a population. A *t*-test looks at the t-statistic, the t-distribution values, and the degrees of freedom to determine the statistical significance. To conduct a test with three or more means, one must use an analysis of variance. It will answer this study's second and third research questions to determine if there is a significant difference between the influence of peers on tobacco use and the level of academic motivation of students based on gender.

3.8.3 Analysis of Variant (ANOVA)

A statistical formula compares variances across different groups' means (or averages). It is used in various scenarios to determine whether there is a difference in the means of different groups. The 'F statistic' is the result of ANOVA. This ratio depicts the difference between within-group and between-group variance, resulting in a figure that allows one to conclude whether the null hypothesis is supported or rejected. If there is a significant difference between the groups, the null hypothesis is rejected, and the F-ratio increases. It will help to answer the fourth and fifth research questions of this study, which is to determine whether the influences of peers on tobacco use and the level of academic motivation of students in a lower secondary school based on socioeconomic status.

3.9 Summary

This chapter provides clear elaboration on the research methodology applied in this study. The researcher has explained how the research approach is adopted in the study, with the details of the sample and population associated with the study, the respondent's selection, the administration of instrument that includes questionnaire development, research materials, and the survey procedure. The data collection method and the data analysis techniques using Statistical Package for Social Sciences (SPSS) version 28.0 are also explained and elaborated in this study. Finally, chapter four of this study explains the analysis results and findings.