

## CHAPTER III

### RESEARCH METHODOLOGY

#### 3.0 Introduction

The purpose of this study is to determine the attitudes of secondary school female students, average age 16 years; of a Malaysian secondary school toward physical activity. This study investigated the relationship between the selected factors; <sup>viz.</sup> ~~that are~~, academic fields of study and athletic involvement, and attitudes of the students toward physical activity in terms of the six perceived sub-domains: physical activity as an aesthetic experience, physical activity as catharsis, physical activity as the pursuit of vertigo, physical activity for health and fitness; physical activity as a social experience, and physical activity as an ascetic experience, which are related to attitude. The research approach of this study was a descriptive and comparative study.

### 3.1 Selection of Subjects for the Study

Female students, age 16 at the Senior Methodist Girls' School were chosen as subjects for the study in view of the following reasons.

The prevalence of obesity in Malaysian is estimated to be 5%– 8% in urban and 6.5% in rural areas (Bedos, 2000). In the urban areas, it was found that the prevalence of overweight in females (N=2111) was 26% and 8% obese as indicated by a study on three ethnic groups in urban areas (Health Today, Jan/Feb., 2000). Health experts have also reported between 10 and 25% of school children in the country are obese (NST, October 11, 1997) and this problem of health is attributed to physical inactivity in these children.

A study also showed that 70% of women especially housewives in Malaysia never exercise at all (Santos, 1998). Being physically inactive is one of the reasons attributed to health risk factors like cardiovascular diseases in adults and even among children (Young & Steinhardt, 1993). Cardiovascular diseases have rose from third position in the 1950s to Number One killer by the 1970s in Malaysia whereby cardiovascular deaths virtually tripled from 9.2% in 1965 to 26.6% in 1989 and has kept increasing (Khoo, Tan & Khoo, 1991). Such

statistical reports of the increasing cardiovascular deaths suggest that Malaysian physical fitness especially the health-related physical fitness of the female population is unsatisfactory.

Even in schools, the level of physical fitness among school age children is not satisfactory as reported by the Sports Division, Ministry of Education. At the 1983 Physical Education Convention in conjunction with the 21<sup>st</sup> Anniversary Convention by the Malaysia Association for Physical Education, Sport Science and Fitness, held in Penang, the association expressed its concern with the poor status of physical fitness among the girls in schools.

The prevalence of hypertension which is attributable to cardiovascular disease in Malaysia, has found to have increased from 14% to 21.5% in rural areas (Jayamalar, 1991). A study on 1486 subjects above the age of 12 years, in Kuala Langat, showed that 21% of the subjects who were not known to have hypertension, were found to have high blood pressure (Arokiasamy & Gan, 1985).

A study on women and sports in Malaysia indicated that Malaysia needs a catalyst to spark a lifelong interest in sports among women and the need for a larger base of women indulging in sports (Singh & Khoo, 1998). These researchers

suggested that in order to achieve it, early intervention has to take place and it has to be at the grassroots level, that is the school; which is the best choice to tap talent and to build the interest in sports and physical activities among the school children at an early age.

In a survey done on 440 upper secondary students in Malaysia to investigate female students' (N=250) involvement during leisure time, showed that there is a lack of interest in sports activities in the students as cited in Zainun's (1998) study. Only 37.2% (n=93) of the female students got themselves involved in physical activities during their leisure time compared to 62.8% (n=157) who decided otherwise.

The lack of interest in physical activities in the Malaysian students could have been attributed to other factors. The emphasis on academic excellence by most schools and the society might have affected the attitudes of the students especially the girls at this age (adolescent) when lifetime attitudes and patterns of living begin to establish. As Hendry (1986) puts it, the decline in participation toward physical education is shown in the students as soon as they reach school-leaving age. Similar pattern was indicated in a Canadian survey which suggest that

the pattern of decreasing activity for females begins in adolescence and continues after high school age (Stephens & Craig, 1990).

The lack of space and proper physical facilities; such as proper equipment and proper changing rooms in most schools might have further added to the female students' lack of interest in physical activities. Moreover, a shortage of qualified trained physical educators, time constraints and large class sizes, could have also badly affected the students' values toward physical activities in schools. There is evidence to suggest it as indicated in a local study by Tan (1991), that the female trainees in her study perceived physical activity as an ascetic experience (physical challenge) as unfavourable.

In view of the lack of interest in physical activities, unsatisfactory health-related fitness of the female students mentioned earlier and the existing shortcomings in most Malaysian schools, it is therefore the intention of this study to investigate the extent of the attitudes of the students toward physical activities and to offer some sense of direction as to what corrective measures to take to promote physical activities in schools.

### 3.2 Instrumentation

The instrument used in this present study to gather data consists of two parts. Part I includes questions concerning some demographical data about each respondent as well as some self-rating questions concerning their background in sports and physical activities. Data on the background information and selected independent variables were gathered from the questions found in the questionnaire designed by the researcher for this study. The following information was elicited through the questionnaire:

- a) Age
- b) Academic Field of Study / Major
- c) Membership on any sports team in present school
- d) Participation in inter-school sports
- e) Participation in intra-mural sports activities

Part II consists of the Kenyon Attitude toward Physical Activity (ATPA) for Women Inventory. After a considerable assessment of the available alternatives, Kenyon ATPA (for Women) Inventory was selected for this research for the following reasons.

Reviews of literature indicate that majority of the studies were more concerned with the assessment of attitude toward specific domains such as sports, team competition and play activity. There were researchers who felt that the studies on attitudes should focus on the multi-dimensionality of physical activity as opposed to specific domains (Onifade, 1983). A study of literature on the development of attitude inventories showed that Kenyon Attitude toward Physical Activity Inventory, developed in 1968, represented the best effort. The Kenyon ATPA inventory came about when Kenyon used it to measure attitude toward physical education based on the multi-dimensionality aspects of this model. In view of the need in the field of physical education to assess the attitudes of the students toward physical education, Kenyon developed two separate but similar inventories for males and females with 59 and 54 items respectively.

The ATPA inventory consists of six scales of six perceived meanings of physical activity and also contains attitude statements representative of each of the six perceived meanings of physical activity. The six are:

- 1) physical activity as an aesthetic experience,
- 2) physical activity as catharsis;
- 3) physical activity a pursuit of vertigo,
- 4) physical activity for health and fitness,

- 5) physical activity as a social experience; and
- 6) physical activity as an ascetic experience.

The reliability of the original Kenyon ATPA Inventory for the six perceived meanings scores ranged from 0.72 to 0.89 from Hoyt reliability statistic for the various scales (Miller, 1994). The validity of the inventory determined showed that generally, scale scores differed between athletes and non-athletes, and expert opinion confirmed that the six dimensions adequately differentiated between active and passive involvement in physical activity (Miller, 1994).

The Kenyon ATPA Inventory also allows the attitude of the subjects to be measured with respect to direction and intensity of feeling toward attitude objects. Items on the inventory are weighed on a priori weight method from 5 (strongly agree) to 1 (strongly disagree). The Likert scales are as follows:

- |   |                     |
|---|---------------------|
| 5 | : Strongly agree    |
| 4 | : Agree             |
| 3 | : Undecided         |
| 2 | : Disagree          |
| 1 | : Strongly disagree |

The above scores are for the positive statements of the inventory while the reverse is true for the negative statements of the inventory. In the scoring for each sub-

domain, each score is scored separately, so in which case each student received six scores which should not be summed to obtain a single score.

The instrument used in this present study was found in Tan's (1991) local study. Necessary modifications were made to some of the items in the original Kenyon ATPA inventory by Tan (1991) so that they reflected local values and scenes in Malaysia. In Tan's study, the adopted inventory was also translated from the original instrument into Bahasa Malaysia, the national language, which is the medium of instruction in the Malaysian education system. Meanings to difficult terminologies used were given to the subjects and explained. Similar but local activities replaced the unfamiliar activities in the inventory carried out by Tan (1991). A test-retest reliability coefficients for Women Forms of the ATPA Inventory conducted by Tan showed reliabilities which are generally high and significant as shown in Table 3.0. According to Tan (1991), the Women Forms of the ATPA Inventory are considered to be reliable in her study of students' attitudes toward physical activity at the University of Malaya with a group of 266 female and 82 male students; and results of the research indicated that the Kenyon Attitude Inventory form for both sexes were reliable and valid instrument for examining students' attitude toward physical activity.

**Table 3.0**

**Test-Retest Reliability Coefficients for the Women Form of the ATPA  
As determined by Tan (1991) in her study**

Subdomains	Women ATPA	Significance
Social	$r = 0.82057$	0.005
Health & Fitness	$r = 0.71415$	0.001
Catharsis	$r = 0.83999$	0.001
Esthetics	$r = 0.80254$	0.001
Vertigo	$r = 0.87280$	0.001
Ascetic	$r = 0.88980$	0.005

Number of cases = 25

### **3.3 Adaptation and Pilot Study of the Kenyon's ATPA Model**

The objectives of the pilot study for this study were to determine the reliability of the modified ATPA inventory used in this study using the test-retest correlation and to get information to improve procedures which might facilitate the smooth and efficient implementation of the main study.

The subjects who took part in this present pilot study comprise 30 female students age 16 who were studying in the Senior Methodist Girls' school. The instrument used in this present study to determine the attitude of the students

toward physical activity was the Kenyon ATPA for Women inventory that was modified and used by Tan (1991) in her study.

There was a concern on whether the subjects in this study would understand the Kenyon Attitude Inventory which was chosen to measure attitude toward physical activity. To ensure that the subjects understood the test instrument, clarification of the inventory was carried out with the subjects by the researcher.

Initially 30 students who did not form part of the main study, participated and upon completion of the Kenyon ATPA inventory, all the participants were interviewed. Findings from the initial stage revealed that the inventory, which has been translated into Bahasa Malaysia, the national language, the medium of instruction in schools, posed a few vocabulary difficulties to the students. In view of this problem, two language experts who are fluent in both English and Bahasa Malaysia presently teaching in the Senior Methodist Girls' school were asked to look into the adapted Bahasa Malaysia version inventory and compare it to the original instrument by Kenyon. Based on the final version of both the adapted Bahasa Malaysia and English versions of the instrument, a pilot test involving another 30 students was carried out. All the students were interviewed to

determine whether the instructions and statements were made clear. The students indicated no difficulties in understanding the inventory. A retest was carried out after a two-week interval on the same 30 students. Internal consistencies using Cronbach's alpha coefficients ranged from 0.61 to 0.85, item analysis ranged from 0.44 to 0.74, and test-retest reliabilities, after a 2-week interval, ranged from 0.62 to 0.86 were obtained in this present pilot study. A t-test between test-retest mean scores of the six items of the inventory showed there is no significant difference between the sub-domain scores of aesthetic, catharsis, health and fitness, social and ascetic; except for the pursuit of vertigo sub-domain scores at 0.05 level of confidence as shown in Table 3.1. Table 3.2 shows a comparison of the test-retest reliabilities for the ATPA inventory used in Tan's (1991) study and this study.

**Table 3.1**

**T-test between the test-retest mean scores of each sub-domain in this present pilot study (N=30 subjects)**

Sub-domains	Mean-scores (N=30)	Standard deviations	Significance (0.05 level of confidence)
Aesthetic	Pre: 29.1 Post: 29.6	4.8 6.0	Not significant
Catharsis	Pre : 30.0 Post: 29.9	3.9 3.7	Not significant
Vertigo	Pre: 27.7 Post: 29.3	3.6 3.4	Significant
Health & Fitness	Pre: 37.7 Post: 37.1	4.8 4.2	Not significant
Social	Pre: 28.2 Post: 28.3	2.8 3.2	Not significant
Ascetic	Pre: 28.1 Post: 28.0	3.1 3.3	Not significant

**Table 3.2**

**Test-retest reliability coefficients for the Women Form of the ATPA**

Sub-domains	Tan's study (n=25)	Present Study (n=30)
Aesthetic	0.93 **	0.81 *
Catharsis	0.89 *	0.85 *
Vertigo	0.92 *	0.81 *
Health & Fitness	0.78 *	0.71 *
Social	0.67 *	0.80 *
Ascetic	0.84 *	0.61 *
	Significant : * .005 ** .001	Significant : * .05

The above table 3.2 shows that the test-retest reliabilities of the sub-domains in this present study are generally high and significant.

### **3.4 Selection of School and Subjects**

The Senior Methodist Girls' school was selected because it met the criteria of being a girl's school whereby there are female students age 16 attending two different academic fields of study, the Arts and Science fields, presently available in this school.

All of the 212 Form Four female students at the Senior Methodist Girls' School, in Kuala Lumpur, average age 16 years were identified as subjects for this study. The population comprises two academic groups: the Arts Programme students (N=135) and the Science Programme students (N=77). The subjects were selected because its population meets the requirements of this study and they have been attending normal physical education lessons twice a week throughout their years of schooling. In terms of physical education, the school has the necessary equipment for a proper physical education class to be carried out. The two

teachers who were teaching the respondents concerned then in this study are college-trained to teach physical education at secondary schools.

For the students' convenience, the questionnaires were distributed to the subjects in one day after their physical lessons. Only 166 subjects were present on that day to answer the questionnaires.

### **3.5 Administration of Questionnaire**

The researcher first obtained the necessary permission from the Principal of the School. Following this, the researcher personally supervised, explained and administered the questionnaire to the subjects using one of the classroom settings. Subjects were told of the purpose of the study and that the results of the survey would not influence their physical education grade and that their identity would be kept strictly confidential. Subjects were instructed to answer the questionnaire independently of each other. Where necessary, the researcher clarified items in the questionnaire. The subjects took about one and a-half-hours to complete the questionnaire. The questionnaire forms were collected on the same day by the researcher.

### 3.6 Data Collection and Analysis

For the pilot study, the test-retest reliability coefficient to establish the degree of relationship between the pretest scores and the post-test scores was determined using the Spearman-Brown correlation. To test for internal consistency in this present pilot study, the Cronbach alpha and item analysis coefficients were used to determine it.

The raw scores were used for analysis with the aid of the SPSS (Statistical Package for the Social Sciences) For Windows Made Simple (Version 7.5) computerized programme. A descriptive statistics of the attitude scores of the six sub-domains of the Kenyon ATPA Inventory obtained from responses of each respondent, in terms of means and standard deviations was calculated, tabulated and analyzed.

The numerical values corresponding to the verbal expression selected for each item are summed within each sub-domain. Thus, each respondent scored six sub-domain scores, one for each sub-domain.

In the Kenyon ATPA questionnaire, each of the sub-domains has a different number of statements as follows; aesthetic (9 items), catharsis (9 items), vertigo (9 items), health and fitness (11 items), social (8 items) and ascetic (8 items) respectively. The responses towards each item by the respondents were indicated on a five-point Likert Scale and expressed as 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree'. Since each sub-domain has a different number of items, the range of mean scores for each sub-domain would also be different for each respondent. Therefore, cut-off points for overall mean scores in each sub-domain were calculated by adopting the rationale and scoring system suggested by Choong (1991) in his study. In the following example with the use of the aesthetic sub-domain, using the Likert scale of 1 to 5, each respondent would be able to produce a score of between 9 and 45 since there were altogether 9 items in the aesthetic sub-domain to be answered. Dividing this range of 36 (45 minus 9) into five equal parts of 7.2 points each, then the lowest possible individual score for the aesthetic sub-domain would be 16.2 points. Therefore, with an increment of 7.2 points the next cut-off point would then be 23.4 and so forth until the highest point of 45.0 is determined as can be seen in Table 3.3. With that a total score of more than 37.8 and less than and equal to 45.0 represents very favourable attitude; more than 30.6 and less than and equal to 37.8 was favourable; more than 23.4 and less than and equal to 30.6 was neutral; more than 16.2 and

less than and equal to 23.4 was very unfavourable; and less than 16.2 was very unfavourable on the aesthetic sub-domain. Scores above the neutral range scores constitute positive attitude and scores below constitute negative attitude.

**Table 3.3**

**Distribution of Cut-off Points for Individual Scores of Attitude based on the Aesthetic Sub-domain (Has 9 items)**

Rating	Direction of Attitude	Cut-off Points
5	Very favourable	Score > 37.8
4	Favourable	Score $\leq$ 37.8 but > 30.6
3	Undecided / Neutral	Score $\leq$ 30.6 but > 23.4
2	Unfavourable	Score $\leq$ 23.4 but > 16.2
1	Very unfavourable	Score $\leq$ 16.2

Likewise the cut-off points for individual scores for social and health and fitness sub-domains were computed using the same procedure mentioned as shown in Tables 3.4 and 3.5 respectively. The catharsis and vertigo sub-domains share the same cut-off points as the aesthetic sub-domain because of the same number of items 9 in the three sub-domains. The ascetic sub-domain shares the same cut-off points as the social sub-domain also because of the same number of items 8 in these two sub-domains.

**Table 3.4**

**Distribution of Cut-off Points for Individual Scores of Attitude based on the Social Sub-domain (Has 8 items)**

Rating	Direction of Attitude	Cut-off Points
5	Very favourable	Score > 33.6
4	Favourable	Score $\leq$ 33.6 but > 27.2
3	Undecided / Neutral	Score $\leq$ 27.2 but > 20.8
2	Unfavourable	Score $\leq$ 20.8 but > 14.4
1	Very unfavourable	Score $\leq$ 14.4

**Table 3.5**

**Distribution of Cut-off Points for Individual Scores of Attitude based on the Health and Fitness Sub-domain (Has 11 items)**

Rating	Direction of Attitude	Cut-off Points
5	Very favourable	Score > 46.2
4	Favourable	Score $\leq$ 46.2 but > 37.4
3	Undecided / Neutral	Score $\leq$ 37.4 but > 28.6
2	Unfavourable	Score $\leq$ 28.6 but > 19.8
1	Very unfavourable	Score $\leq$ 19.8

To test the hypotheses and to determine whether significant differences existed in the attitude mean scores between the two different groups of fields of study and athletic experiences, t-tests were computed, at 0.05 level of significance. Here, a comparison for each sub-domain of attitude between the Arts and Science

students; and also between the athletes and non-athletes were computed as to assist in answering the second and third research questions of this present study.

### 3.7 Summary

Chapter three described the research methodology of the study. The major focus of chapter three was on selection of subjects, selection of instruments, data collection and analysis, administration of test and treatment of data. All subjects in this study were selected on a voluntary basis and the final number of the study was 166. Detailed descriptive statistic findings, statistical testing of hypotheses and discussion of findings are presented in the next chapter.