

Preliminary evaluation of STRIDE programme in primary schools of Malaysia

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Abstract: The Students' Resilience and Interpersonal Skills Development Education (STRIDE) is a preventive drug education programme. The rationale of this programme is that preventive drug education has to begin early in age, before the development of social attitudes and behaviour of students. A pre and a post intervention surveys were performed to evaluate the impact of this programme. Nine schools from three states were identified to participate in the intervention. These schools were selected based on their locations in high-drug-use areas (where the prevalence of drug use exceeds 0.5% of the student population). The new intervention curriculum was put into practice for three months in the nine schools. The overall scores obtained by each respondent to assess their knowledge on drugs and its implications were analysed. The results showed that the programme made a positive impact from the pre to post intervention programme by using the Wilcoxon Signed Rank Test ($p < 0.05$). A high percentage of the questions showed significant evidence through the McNemar matched pair Chi-Squared test with Bonferroni correction that there were positive shifts in the answers by comparing the pre and post intervention results ($p < 0.05$). Recommendations have been discussed with the Ministry of Education to integrate this programme into the national primary school curriculum.

INTRODUCTION

In many countries in Asia, the increased availability and variety of drugs has led to a high prevalence of drug abuse among its youth. Drug abuse in Malaysia is not a recent phenomenon. It has a history that is closely associated with the early development of the country. Drug abuse was introduced into the country in the early 19th century with the importation of migrant labor from China and South India. The Chinese brought in the habit of opium smoking, while the Indians are credited with the introduction of the cannabis or ganja smoking (How, 1999).

The United Nations Drug Control Programme research has shown that drug abuse is on the rise in many ASEAN countries, especially amongst young males between 15 and 30 years of age. Statistics

from the National Drug Information System illustrated that 45% of drug users started using drugs while in schools (How, 1999). According to the National Narcotics Agency, the cumulative total number of drug addicts in Malaysia from the year 1988 to 2005 is 289,763. This is more than 1% of the population of Malaysia. From January to December 2005, there were 32,808 drug addicts all over Malaysia of which 15,389 (46.91%) are new cases and 17,419 (53.09%) are repeated cases. The figure shows an increment of about 1.07% by comparing with the previous year. Penang has the largest number of drug addicts in 2005 (6403), followed by Federal Territory, Kuala Lumpur (4906), Johor (3910) and Perak (3304).

This clearly indicates that new and innovative methods of drug abuse prevention are needed. The Director General, National

Drug Agency noted at the 42nd Conference of Narcotic Drugs Commission in Vienna that with Malaysia's vision to create a drug free nation by the year 2023, there exists an emphasis on strengthening the life skills and self-confidence of young people to resist the lure of drugs. Hence, schools provide practical and effective channels that are essential in drug prevention programmes. Schools also have a captive audience encompassing nearly everyone in the appropriate age range for primary prevention.

A pilot preventive drug education programme known as STRIDE (Students' Resilience and Interpersonal Skills Development Education) was tested in this research project. The aim of the programme was to build and enhance interpersonal skills as well as develop resilience of students through a physical and health education curriculum. This project involved nine primary schools in Penang, Perak and Kuala Lumpur. Standard five students (11 year olds) were selected to participate in the programme for a duration of twelve weeks. The programme culminated with a 3-day camp at the Police Field Force Camp to build their physical, spiritual and mental resilience as well as leadership skills. The parties involved in the STRIDE study were the National Narcotics Agency, Ministry of Education, Institute for Medical Research and the Police Department. The purpose of this paper is to evaluate this STRIDE programme, and if found to be useful, it can be intergrated into the local national primary school curriculum to improve their knowledge on drug abuse and its negative aspects.

MATERIALS AND METHODS

A cross sectional school based survey was conducted in 9 primary schools in Penang, Perak and Kuala Lumpur. These 3 states were selected due to the high prevalence of drug addicts in these states. Listing of all the primary schools in the 3 states was supplied by the State Education Department. This list included only government /national schools

(where the medium of instruction is in *Bahasa Malaysia*), excluding the Chinese and Tamil schools, as well as the private schools. Schools that had a high prevalence of drug abuse (i.e. the prevalence of drug abuse exceeded 0.5% of the student population) were selected as the sampling frame. The sampling design of this study was stratified cluster random sampling. Nine schools were selected from the sampling frame where the three states became the strata. Three schools from each state were then selected to be involved in the study. Two classes of primary five students were selected randomly from each school (if the school had more than 2 classes of primary five students) or all students were selected if the schools had 2 or less than 2 classes of primary 5 students (cluster sampling). This sample is representative of the target population in the major cities in Malaysia.

The STRIDE is a structured programme consisting of lectures, physical activities, role playing and ultimately applying their knowledge in the camp, which was held at the end of the programme. The programme was conducted over 3 months period. The Programme consisted of 12 lectures which included dialogues, discussions, questions and answers over a period of 12 consecutive weeks. On the first session, after the introduction of the programme, the structured questionnaire on drug knowledge, attitude and practices was distributed to all students in the selected classes to be filled and collected after 15-20 minutes. The questionnaires were given identification numbers (IDs) according to the attendance register of each class. The questionnaires were collected and stored according to their classes and schools. At the post intervention survey, similar methodology was applied to keep the questionnaires labeled by IDs according to the same class attendance register in the respective schools, this made matching easier at the end of the study. The questionnaire was adopted from the STRIDE from USA, which was translated to *Bahasa Malaysia* (the national language of Malaysia). The translated questionnaire was tested in one of the local primary schools in Kuala Lumpur, which was not included in the

study sample. After the pre-testing, minor modifications were made to the questionnaires before being used in the survey. The questionnaire consists of 15 objective questions related to the knowledge and other risk influencing habits and behaviors of drug abuse among primary five students. There was 1 session every week during their physical activity session (which lasted for 45 minutes). These sessions emphasized on the drug problems in Malaysia, types of illegal drugs commonly used, making wise decisions, avoiding high risk behaviors, developing communication skills and discussing healthy alternatives. The sessions were conducted by 3 agencies, namely the Anti-Narcotic Agency, The Police Department and the discipline teachers of the respective schools. The Anti-Narcotic Agency and the Police trainers were from their respective state departments, who had attended a one day course of training the trainers at the Anti-Narcotic Agency Headquarters in Kuala Lumpur.

On the 12th week, after the last session, the same questionnaire was distributed to all the same classes to be filled in the class again. The pre and post questionnaires were analyzed using the SPSS Statistical software package. The pre and post results were given an overall score to evaluate the respondent's knowledge on drugs. The overall score was used for comparison between the pre and post intervention results. At the end of the 12 week session, a camp was organized for 3 days at the Police Field Force Camp site in Kuala Lumpur. This camp was to build their physical, spiritual, mental resilience and their leadership skills.

Data was collected from a total of 601 students from nine primary schools. The questionnaire consisted of 15 questions measured on dichotomous scale. The information collected through the questionnaire included drug knowledge, peer influence and other risk factors influencing the habits and behaviors of drug abuse among primary five students. Data was collected anonymously, without their names but only identification numbers (IDs) to ensure complete confidentiality. The pre and post questionnaires were matched with their

IDs. The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 11.5. Kolmogorov Smirnov test showed that the normality distribution assumption was not fulfilled, therefore nonparametric test will be applied later. Descriptive measures using the median and interquartile range of the overall scores were compared between the pre and post intervention groups. The Wilcoxon Signed Rank test and the McNemar matched pair chi square test applied with Bonferonni correction were performed to determine the impact of the programme.

RESULTS AND DISCUSSION

A 100% response rate to the questionnaire was obtained in the pre-intervention survey. Of the 601 questionnaires collected, about 2.7% (16) were rejected as they were incompletely filled. The remaining 585 questionnaires were kept to match the post intervention questionnaires. From the proportionate stratified sampling, the ratio of students from Federal Territory, Perak and Penang were 41:27:32 while the male to female ratio was 3:2 (243 : 162).

At the post intervention survey, 11% (66) of the students were absent, only 535 students attempted to answer the questionnaire. Of the 535 questionnaires, 24.3% (130) could not be used as they were incomplete or could not be matched to the pre intervention IDs. Therefore only 75.7% (405) completed and matched questionnaires were used for all further analysis. The percentage distribution of correct answers to the questions before and after the intervention programme are presented in Figure 1. The effectiveness of the STRIDE is measured by the percentage improvement shown by the selected students. The data showed that there was an overall improvement in the knowledge level in aspects of the law concerning drug trafficking, the health implications of drug addiction, risk factors, behavior of drug addicts and resilience among the students who participated in the STRIDE.

Table 1. Percentage distribution of correct answers and the significance level for questions by using McNemar Chi-Square with Bonferonni corrections on knowledge on drugs in pre and post intervention STRIDE

Nu.	STATEMENTS	Pre-stage	Post-stage	Difference of percentage (%)	McNemar (χ^2)	p-value
1	Sale of drugs in Malaysia can lead to a death sentence	89.4	96.2	6.8	14.205	0.000*
2	Occasional taking of drugs will not harm me	84.7	86.5	1.8	2.943	1.000
3	Smoking can lead to drug addiction	72.0	89.0	17.0	20.742	0.000*
4	Truancy from school can lead to drug addiction	51.3	76.0	24.7	68.906	0.000*
5	Easy to stop from using drugs	78.2	84.0	5.8	21.918	0.000*
6	Drug users are calm	82.6	80.1	-2.5	1.833	1.000
7	Easy to treat a drug addict	82.9	87.0	4.1	4.339	0.555
8	I can do many things that are good than taking drugs	90.6	91.7	1.1	0.085	1.000
9	It is difficult for me to say 'NO' to my friends	46.6	56.1	9.5	3.872	0.735
10	It is alright to have traffickers as friends	86.2	89.1	2.9	2.361	1.000
11	I can think better with ganja	80.9	83.6	2.7	0.000	1.000
12	Ganja causes cancer	22.8	14.9	-7.9	4.396	0.54
13	All drug addicts are poorly dressed	79.6	80.3	0.7	0.278	1.000
14	One way to say 'NO' to drugs is to leave the place immediately	75.9	93.3	17.4	24.615	0.000*
15	Sports help in keeping my body healthy	96.3	96.8	0.5	0.000	1.000

* p<0.05

There was an increase of 6.8%, from 89.4% at pre-stage to 96.2% at post-stage, in awareness among the students that drug-trafficking in Malaysia can lead to a death sentence. The data also showed that the STRIDE could impart knowledge about risk factors involved in drug addiction. The highest increase in the pre-stage and post-stage comparison was in the truancy risk factor. There was an increase of 24.7% from 51.3% at pre-stage to 76.0% at post-stage, of students recognizing that truancy can lead to drug addiction. There was also a significant increase in the understanding amongst students that smoking can lead to

drug addiction (from 72.0% at pre-stage to 89.0% at post-stage). At both stages, 96.3% at pre-stage and 96.8% at post-stage, an equal number of students believed that sports are important to maintain a healthy body.

There was also a small drop (2.5%) in the number of students who still believed that drug users were calm, while there was a small increase (0.7%) in the number of students who thought that drug addicts are poorly dressed. Many students, 90.6% at pre-stage and 91.7% at post-stage, agreed that they could spend their time doing useful things instead of indulging in drugs. The programme was successful at building

resilience among its participants. There was also a significant jump of 17.4% in students at post-stage (93.3%) compared to students at pre-stage (75.9%) who had the confidence to leave a place immediately where drugs were available.

Nevertheless, seven questions resulted in unexpected figures. There was an increase from 80.9% pre-stage to 83.6% post-stage of students who anticipated that they could think better with ganja, while there was a drop from 22.8% pre-stage to 14.9% of students who thought that ganja could cause cancer. Many respondents (86.2% at pre-stage to 89.1% at post-stage), considered it safe to have drug traffickers as their peers. Prior to participating in the programme, only 78.2% of students thought that it was easy to stop being a drug addict and 82.9% considered it easy to treat a drug addict. However, this percentage increased after the programme to 84.0% and 87.0% respectively. While 46.6% of students found it difficult to say 'NO' to drugs offered by their peers before the programme, 56.1% could not say 'NO' to their peers after the programme. Almost eighty seven percent (86.5%) of students at post stage thought that occasional consumption of drugs will not be harmful compared to 84.7% at pre stage.

The pre and post results had been given an overall score to evaluate the respondent's knowledge on drugs. The overall score then had been used for comparison between pre and post intervention. The Figure 2 displays the box-plots for the knowledge scores by pre and post intervention programme. The p-values for the test of normality, using the Kolmogorov-Smirnov test were both less than the 5% level of significance and the skewness values for both pre and post intervention programmes also had negative values, therefore the scores were assumed not to follow the normal distribution. Before the STRIDE, the score range from 35 to 43 with the median score of 41.00 and the interquartile range of 4.00. After the intervention, the range of the score has a small increase from 36 to 44, with an increase in the median to 42.00 and a smaller interquartile range of 3.00.

Wilcoxon Signed Rank Test was performed to see if there was a significant difference in the median of knowledge between pre and post intervention. Kolmogorov-Smirnov test, which is a non-parametric procedure, was applied because of the skewness of the data on the knowledge distribution (Figure 2). The results indicated that there was a significant difference in the magnitude of knowledge before and after the intervention (Figure 3). The positive ranks show a larger value than the negative ranks. This shows that there was a significant increase in the knowledge, after the intervention as compared to before the intervention programme ($p < 0.05$). Another way to consider the impact of the programme is to examine the pre and post intervention rates of abnormalities using the McNemar matched pair chi-squared test with Bonferonni correction and the significance level (Warren *et al.*, 2003). Figure 1 shows the significant questions in the pre and post intervention programme that provided sufficient evidence to conclude at 0.05 level of significance that there were shifts in abnormality rates.

It was concluded that the programme made a positive impact even though there were some unexpected results. The general knowledge on drugs of these standard five students was above average even before participation in the intervention programme. Approximately 75% of these students possessed adequate knowledge on drug addiction. This could be due to several factors particularly the widespread dissemination of such knowledge in the mass media. The extensive coverage concerning the negative effects of drug abuse on television and radio was able to provide adequate basic knowledge about drugs. This coverage is in the form of advertisements and educational films during educational television programme blocks such as *TV Pendidikan*, during children programmes such as cartoons and during prime time shows. Exposure to these programmes not only enables young adolescents to understand the harmful effects of drugs, but may also draw their parents into discussions

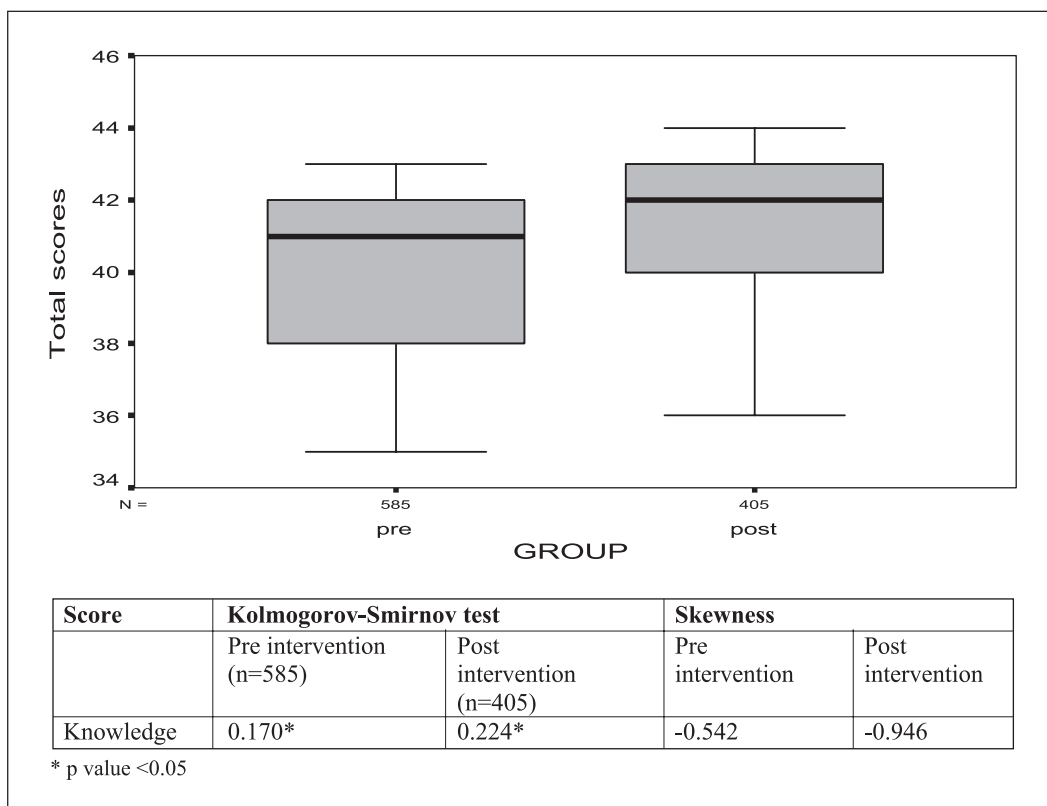


Figure 1. Box-plots, skewness values and descriptive statistics for knowledge scores by pre and post intervention programme.

Table 2. The results using Wilcoxon Signed Rank Test

		N	Mean Rank	Sum of Ranks	P value
Post intervention scores compare with pre intervention scores	Negative Ranks	125	150.66	18833.00	0.000*
	Positive Ranks	232	194.27	45070.00	
	Ties	48			
	Total	405			

*p value < 0.05

with them about the effects of drug abuse. Other factors, such as the education level of their parents and higher income of the household can contribute to the level of knowledge on drug addiction as this group of parents are more equipped to inform and guide their children.

While there was already an above average level of knowledge concerning drugs

amongst the students, the STRIDE was successful in further improving these levels. These positive impacts were due to the detailed planning of the programme that took into account several criteria such as the learning environment, the availability of resources and the human factor involved. The activities in the programme were designed to create awareness and generate

interest amongst the students so that they could further engage themselves in discussions and take on an active role in seeking information to keep away from drugs. The programme was implemented through building an information-rich environment, developing interpersonal skills, the use of educational media, integration of activities and community involvement programmes. On the other hand, the negative impacts that contradicted the rationale of the STRIDE were caused by irregularities of the profiles of the students. The variety of backgrounds and environments in which they originated from may change the response to the questions. This led to a broader interpretation of the questionnaires.

Nevertheless, the STRIDE itself was found to have some limitations, which were overlooked during implementation. Firstly, the qualifications of the STRIDE trainers were not consistent, making the imparting of knowledge to vary with technique and coherence. Thus, the relay of information to the students may not have been effective. Secondly, the time allocation for the execution of the programme, i.e. during school hours, was found to be unsuitable. Time constraints are a major problem in schools as students struggle to finish their syllabus, play sports and engage in co-curriculum activities. The 45 minutes course could have been taxing to a tired mind and body, which actually replaced their play time. On the other hand, 45 minutes is also much too short for an intensive program to teach young students about the dangers of drugs. Thirdly, as the programme was directly adopted from United States, though it was translated into the local language, it could have caused some confusion in understanding the questions.

Overall, the STRIDE was successful at building strong interpersonal skills and developing self-resilience among the students involved. However, some form of localization should have been performed on both the programme and the questionnaire to obtain a better result. For example, the questionnaire should be subjected to close

examination and be tailored to suit the Malaysian education system. The STRIDE could also be performed during the long school holidays instead of a 45 minutes course during the school term so that it would be more effective. Furthermore, a properly trained and competent trainer who understands and is able to identify with the young adolescent students should have been employed in this programme. As the programme was only executed in 3 states in Malaysia, a much more detailed and comprehensive overview of the programme should have been conducted throughout the 14 states in Malaysia, to see whether this program is truly effective in the Malaysian context. Hence, the essence of the STRIDE should be maximized to its fullest potential to obtain the positive and enduring outcome of creating students whose foundations are physically, mentally and spiritually strong and sound.

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