

Exercise Habits in South Trinidad: Motivating Forces and Barriers

TJR Babwah¹, P Nunes²

ABSTRACT

Objectives: There are many benefits of regular exercise. The aim of this study was to determine the exercise habits and knowledge of the benefits of exercise in a South Trinidad population. This study also sought to determine the motivating factors for exercise and the barriers experienced by those who did not exercise.

Subjects and Methods: A self-administered questionnaire was distributed to 700 persons between the ages of 15–75-years in Princes Town, South Trinidad. The exercise habits of the population, the effect of age on exercise and the impact of knowledge of benefits of exercise on the desire to participate in exercise were determined.

Results: Of the 66.6% (95% CI: 62.6, 70.3) respondents who exercised, only 10.7% exercised adequately. Walking was the main form of exercise (60.6%). Health reasons were cited as the major motivating factor for exercising in the 60–75-year age group. Persons 15–59 years indicated that time constraints were the major reason for not exercising. Most participants (77.2%) felt that the healthcare provider should advise on exercise. Knowledge of at least one benefit of exercise increased the likelihood of exercising ($p < 0.0001$). Younger persons were more likely to exercise at least once weekly than older persons ($p = 0.0002$).

Conclusion: A high proportion of persons do not exercise regularly or adequately and efforts are needed to encourage exercise in this population. This study suggests that encouragement should come from healthcare providers. Time management and accumulating daily exercise are two areas to consider when advising sedentary individuals about exercise.

Keywords: Community health, exercising, Trinidad

Hábitos de Ejercicio en Trinidad Sur: Fuerzas Motivacionales y Barreras

TJR Babwah¹, P Nunes²

RESUMEN

Objetivos: El ejercicio regular posee muchos beneficios. El objetivo de este estudio fue determinar los hábitos del ejercicio y el conocimiento de los beneficios del ejercicio en una población de Trinidad Sur. Este estudio también buscó determinar los factores motivacionales para el ejercicio, así como las barreras experimentadas por quienes no hacían ejercicios.

Sujetos y métodos: Se distribuyó una encuesta auto-administrada a 700 personas entre las edades de 15-75 años en Princes Town, Trinidad Sur. Se determinaron los hábitos de ejercicio de la población, el efecto de la edad en el ejercicio y el impacto del conocimiento de los beneficios de en el deseo para participar en los ejercicios.

Resultados: De los 66.6% (95% CI: 62.6, 70.3) encuestados que realizaban ejercicios, sólo 10.7% ejercitaban adecuadamente. Caminar era la forma principal de ejercicio (60.6%). Se citaron las razones de salud como el factor motivacional mayor para la ejercitación en el grupo de 60-75 años. Las personas de 15–59 años indicaron que las limitaciones de tiempo constituían la razón mayor para no hacer ejercicios. La mayoría de los participantes (77.2%) opinaban que el proveedor de los cuidados de salud debía aconsejar el ejercicio. El conocimiento de por lo menos un beneficio de los ejercicios aumentó la probabilidad de la ejercitación ($p < 0.0001$). Las personas más jóvenes

From: ¹Princes Town District Health Facility, Princes Town and ²Department of Family Medicine, The University of the West Indies, St Augustine, Trinidad and Tobago, West Indies.

Correspondence: Dr T Babwah, 28 Kingsley Street, Princes Town, Trinidad and Tobago, West Indies. Email: terbab@hotmail.com

mostraban una probabilidad mayor de hacer ejercicios por lo menos una vez semanalmente, que las personas de mayor edad ($p = 0.0002$).

Conclusión: *Un número elevado de personas no hacían ejercicios regularmente o adecuadamente, y se requiere un esfuerzo para estimular los ejercicios en esta población. Este estudio sugiere que el estímulo debe venir de los proveedores de los cuidados de salud. La administración del tiempo y la acumulación de ejercicios diariamente son dos áreas a considerar a la hora de aconsejar a los individuos sedentarios sobre la necesidad de hacer ejercicios.*

Keywords:Palabras claves: Salud comunitaria, ejercitación Trinidad

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INTRODUCTION

The benefits of regular exercise are well known and demonstrated in populations of varying ages. Adolescents who participate in a range of physical activity such as involvement in sports in school and using the neighbourhood recreation centres are less likely to engage in high risk behaviour than those who did not (1). In addition, persons involved in vigorous leisure activity reduce the risk of poor physical functioning later in life (2).

Cardiovascular disease ranked as the number one cause of death for all genders in Caribbean countries in 2000 (3). Exercise has been shown to have a positive impact on the primary prevention of cardiac disease. A meta-analysis on the effect of exercise on the development of coronary heart disease showed that "physical activity has a protective effect against coronary heart disease" (4). Regular exercise also has positive effects on cardiac risk factors. Not only does exercise reduce triglyceride levels and elevate high density lipoprotein (HDL) levels (5), it also reduces blood glucose levels (6, 7) and blood pressure readings in adults (8). On the converse, a low level of physical fitness was shown by Miller *et al* in Trinidad to be a predictor of death from all causes, including ischaemic heart disease (9).

The current recommendation for adequate exercise by the American College of Sports Medicine (ACSM) and American Heart Association (AHA) is that persons 18–65 years old should have at least 30 minutes of moderate physical activity at least 5 times per week. An important consideration with this recommendation is that the 30 minutes of moderate type aerobic activity recommended can be accumulated, that is, divided into sessions of at least 10 minutes each (10).

Despite all the research showing the benefits of exercise, many persons in various countries have not been engaging in physical activity on a regular basis. In Germany (11) and Jamaica (12), almost 40% and 30% respectively of adults did not exercise. In Curaçao, 75% of the population did not exercise regularly (13). No known studies on the exercise habits of the population in Trinidad and Tobago were found by the authors.

Princes Town is a developing town in South Trinidad with an estimated population of 91 947 (14). It is a multi-racial society, with persons of East Indians and African

descent as well as a mixed ethnic group (mainly East Indian and African) being the most common. The aim of this study was to determine the current exercise habits, knowledge of exercise, motivating factors and barriers to exercise in the people of Princes Town. Information of this nature is essential to the development of a sustainable community programme which promote regular exercise as a way of healthy living. The ultimate goal of this primary preventive measure would be to decrease the prevalence of cardiovascular disease in this population.

SUBJECTS AND METHODS

Convenience sampling with a consecutive design included patients attending the Primary Care Unit and workers at Princes Town District Health Facility. Additionally, students of two secondary schools, members of two religious organizations and 15 families were selected at random from the Princes Town area. The population sample size was 700. The questionnaires were self-administered, semi-structured and comprised demographic data, exercise habits, knowledge of benefits, motivating factors and barriers to exercise. The core questions are shown in Table 1. There was a pilot study

Table 1: Core questions of self-administered questionnaire on Exercise

1. "Do you exercise?" was the start question.
2. "Do you know any health benefits of exercise?"
3. "Who do you believe should advise you on exercise?"
4. If you do exercise: "What motivates you to exercise?"
5. If you don't exercise: "What prevents you from exercising?"

All questions were further explored with the patients.

before the full study was administered. Approval for this study was granted by the Medical Research Committee of the South West Regional Health Authority under whose jurisdiction this project fell.

The data were analysed using Epi Info (3.2.2 version). Single factors were analysed by simple frequencies. Analyses were stratified by gender and according to four age groups: 15–29, 30–44, 45–59 and 60–75 years to investigate any gender and age differences in exercise habits. Chi-squared analysis was used to assess the association between the variables (a) exercise frequency and the age of the participants (b) exercise frequency and duration of an exercise

session and (c) knowledge of at least one benefit of exercise and the participation in exercise at least once weekly. In all analyses, a *p* value of < 0.05 was considered statistically significant.

RESULTS

In total 616/700 (88%) questionnaires were completed and returned. This response rate was similar to the Jamaican national healthy lifestyle survey which had an 87.6% response rate (15).

Demographics: Women represented 341 (55.4%) and men 275 (44.6%) of the 616 respondents. The proportions of the various ethnic groups for the sample was compared to the general population based on the Trinidad 2000 Census (14) and the national percentages are shown in parentheses: East Indian origin 50.5% (*vs* 40.3%); African origin 25% (*vs* 39.6%); Mixed ethnicity 21.6% (*vs* 18.4%); other (Chinese, Caucasian). 2.9% (*vs* 1.6%). The distribution of persons for the different age groups in the study is shown in Fig.1.

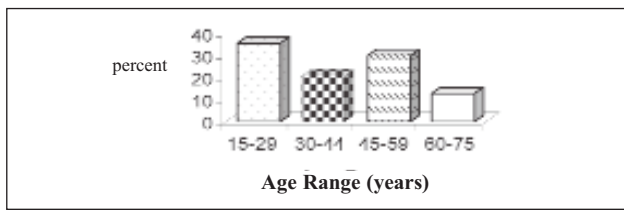


Fig. 1: The frequencies of the different age groups in the sample population

Exercise habits: Sixty-six per cent (403/610) of respondents indicated that they exercised. Of those who exercised, 56.1% (226/403) exercised three to four times per week but only 10.7% (43/403) met or exceeded the weekly recommendation for exercise. This is shown in Table 2. Walking was the main

Table 2: A cross-tabulation between frequency of exercise per week and duration of each exercise session in minutes

Exercise frequency/week	Length of exercise session (minutes)				Total
	0-10	11-20	21-30	>30	
1-2	10 (41.7)	29 (36.7)	37 (25.2)	31 (20.3)	107 (26.6)
3-4	10 (41.7)	43 (54.4)	94 (63.9)	79 (51.6)	226 (56.1)
5-7	4 (16.7)	7 (8.9)	16 (10.9)	43 (28.1)	70 (17.3)
Total	24 (100)	79 (100)	147 (100)	153 (100)	403 (100)

Values in () parentheses represent the percentage of the total columns

form of exercise in 60.6% while jogging was the preferred method in 20%. Only 7.2 % of respondents exercised by using weights and less than 13% had aerobic or physical education classes, biking or played sport regularly. Younger persons were more likely to exercise than older persons (71.1% *versus* 46.8% respectively). This is shown in Table 3.

Table 3: The effect of respondents' age on whether they exercised or not (for all values *p* = 0.0002)

Do you exercise?	Age				Total
	15-29	30-44	45-59	60-75	
No	63 (28.9)	33 (25.4)	67 (36.2)	41 (53.2)	204
Yes	155 (71.1)	97 (74.6)	118 (63.8)	36 (46.8)	406
Total	218 (100)	130 (100)	185 (100)	77 (100)	610

Values within parentheses represent the percentage of the column.

Motivating factors: The different motivating factors for exercise appeared to be related to the age of the participants. Health reasons comprised 78% and 67% of the 60-75 and 45-59-year age groups, respectively whereas only 22% in the 15-29-year age group cited this as a reason. "Self motivation" was the main reason given by 62% of persons aged 15-29 years old.

Barriers to exercise: For those who did not exercise, "no time" was the most common response for 56.2% of the age groups 15-59-years. Only 8% of persons 60-75 years old reported that they had "no time" to exercise. Of those who did not exercise, about a quarter (25.8%) indicated that they "don't see it as important" to exercise.

Benefits to exercise: In terms of benefit(s) of exercise, 74.3% knew at least one benefit. The question "name one benefit of exercise." was an open-ended question. The responses were then subdivided into 5 categories based on the responses given: controls chronic diseases, prevents disease, increases

Table 4: Showing the responses to the question "state one benefit of exercise"

Benefits of exercise	Number of respondents
Increased physical fitness	206 (45.9)
Control of chronic diseases	99 (22.0)
Prevention of chronic diseases	91 (20.3)
Mental well being	44 (9.8)
Other	9 (2.0)

The values in parentheses represent the percentage of the 449 respondents stating each benefit of exercise

physical fitness, mental well being and other reasons. The results are shown in Table 4.

Seventy-eight per cent (78%, 352/453) of persons who knew of at least one benefit of exercising, exercised at least once weekly and 66% (103/157) of persons who did not know of any benefit of exercise did not exercise. Knowledge of a benefit of exercise increased the likelihood of the person exercising and conversely, not knowing a benefit of exercise

increased the likelihood of the person not exercising ($p < 0.0001$).

Exercise advice: 614/616 (99%) of participants answered this question; 77.2% (474/614) believed that the doctor or health professional should give advice on exercise, while 21.5% believed that the fitness instructor should perform this function. A few (1.3%) believed that “others” like teachers and village leaders should do this function.

DISCUSSION

The evidence is increasing that exercise promotes good health, improves the control of chronic diseases including diabetes mellitus and hypertension thereby decreasing the risk of developing complications of these diseases (16, 17). Despite this evidence, in many developed and developing countries many persons do not exercise.

The results of this study were found to be similar to those seen in Germany and Jamaica, with 33.4% of persons indicating that they did not exercise. Whereas 66.6% of persons responded that they exercised at least once weekly, only 10.7% of those who exercised met the minimum volume and duration of exercise recommended by ACSM and AHA (10). This result is a source of concern for health providers as it suggests that the proven health benefits derived from regular exercising may not be achieved by most persons who exercise in Princes Town.

Age is a non-modifiable risk factor for chronic diseases like cardiovascular disease, non-insulin dependent diabetes mellitus, hypertension and osteoporosis. As such, physical inactivity in the elderly is of particular concern (18). It was noted that, although 71.1% of persons aged 15–29 years exercised, only 46.8% of persons 60–75 years exercised. This lower involvement in physical activity may be part explained by the greater occurrence of diseases like osteoarthritis and heart disease in the older population (19). Sawatzky *et al* also found that adults with chronic health conditions were unlikely to expend more than 1000 kcal per week in exercise related activity (20). However, there is consensus that the benefits of physical activity in the elderly outweigh that of the risks (21, 22).

By far, walking was the most popular form of exercise in this study as 61% of persons chose walking as their preferred form of activity and 20% chose running. Therefore, any exercise programme in this community should encompass walking as the main form of aerobic exercise. A graded exercise programme which progresses from walking to running would probably better suit this population as the adaptations to exercise occur over time. Very few persons used any weights in the study and the use of body weight resistance exercises (*eg* push ups, pull downs) was not evaluated. However, there are major strength benefits, improvements in hypertension and insulin resistance to be derived from resistance exercise so that both aerobic and resistance exercise need to be encouraged (23–25).

Motivation for exercise varied with the respondents' age. Older persons were more likely to exercise because of the health benefits associated with exercise while younger persons were more likely to exhibit intrinsic motivation or “self motivation” for exercising.

Godin *et al* found that of those persons who have the intention to exercise and actually do not, these persons perceived exercise as physically demanding and had difficulty fitting an exercise programme into their weekly schedule (26). In the Princes Town population, the persons in the 15–59-year age group who did not exercise gave “no time,” as the most common reason and “did not see exercise as important” as the next common reason. The rationale of “no time” is not unexpected as this group includes students and persons in full-time employment. These attitudes held by this age group (15–59 years) would need to be addressed when developing a community exercise programmes.

A positive association was observed between knowledge of the benefits of exercise and the actual involvement in physical activity. To promote physical exercise, it is therefore recommended that persons be advised regularly of the benefits of exercise as well as the possibility of accumulating 30 minutes of physical activity on most days of the week by doing moderate intensity of exercise in sessions of at least 10 minutes.

In a national survey done in the United States of America, Abramson *et al* found that inadequate time during a consultation was the major reason stated by doctors in primary care for not counselling their patients about exercise (27). In Trinidad and Tobago and other Caribbean countries where consultation times in the public health setting is about five to eight minutes, time to counsel patients about exercising is also very limited. Despite the time constraints, 77% of participants felt that the doctor or healthcare professional should advise them on exercise. This has important ramifications for health-workers in that patients expect advice on exercise despite the time constraints that exist currently. An alternative solution that may be more appropriate is for the health-provider to speak to groups of patients together at a clinic setting about the benefits of exercise and how to exercise. The proposed exercise plan can then be briefly reinforced during the actual consultation. Doctors who exercise are more likely to advise their patients about exercising (27), this suggests that doctors themselves need, in their training, to be apprised of the compelling evidence of the benefits of exercise.

Two studies from New Zealand looked at the effectiveness of counselling patients in general practice about exercise. Swinburn *et al* found that in terms of the numbers of patients exercising, and the actual time spent exercising, written advice in addition to verbal advice had an added benefit over verbal advice when given alone, after follow-up at 6 months (28). Elley *et al* showed that counselling increased participants' physical activity, both by increased energy expenditure and leisure time activity, over a one-year

period (29). Although actual figures for exercise advice given by Caribbean doctors is not readily available, a study reviewing the changing patterns of primary care delivery for diabetes in Trinidad and Tobago over a 10- year period revealed that recorded exercise advice given to diabetic patients in Trinidad and Tobago had increased from 3% to 61% over 10 years. It was proposed by the authors that this was in part due to the hosting of regular medical workshops for medical professionals emphasizing new guidelines in management of diabetes (30). Workshops could also be used to encourage medical personnel to recommend exercise to all patients by stressing the benefits of regular exercise in prevention of, and as an adjunct to, treating chronic diseases.

Since the most common reasons cited by the 15–59-year age group for not exercising were “no time” and “do not see exercise as important,” targeting adolescents could be an effective way to encourage activity. A Greek study encouraging physical activity in adolescents which promoted cooperative rather than competitive activities, with enjoyable and fitness orientated activities, was found to increase physical activity per week in the young students (31). In Trinidad and Tobago, in schools where physical education is on the curriculum, the classes take the form of a competitive game. Students who are not particularly skilled in physical activities may not participate and therefore do not experience or appreciate the benefits associated with exercise. Mitchell and Olds recommend that exercise programmes should be easily accessed, flexible, encourage reasonable goal-setting practices and ensure that one-on-one encouragement might be successful based on predictors of physical activity (32). These factors should be considered when designing an exercise programme to increase the likelihood of success.

There were two limitations to this study. First the intensity of the exercise sessions was not evaluated in the questionnaire because of the complexity of trying to reliably evaluate this parameter in a questionnaire format. Secondly, this was a study that looked at the actual exercise habits of persons. It did not attempt to evaluate their daily cumulative activity and energy expenditure. Had this been done, it may have led to more persons meeting the weekly cumulative exercise recommendations. This concept was also difficult to evaluate in a simple questionnaire format and may have led to participants guessing the time spent in daily physical activity.

There are a high proportion of persons who do not exercise regularly (33.4%) or adequately (56.1%) and efforts are needed to encourage exercise in this population. This study suggests that encouragement should come and is welcomed from healthcare providers. Time management and accumulating daily exercise are two areas to consider when advising sedentary individuals on the need for regular exercise.

In conclusion, a large proportion of persons in the sample population of Princes Town do not exercise regularly or adequately when assessed against the current recom-

mendations by the American College of Sports Medicine (ACSM) and American Heart Association (AHA) (10). This study showed that participants, who knew the benefits of exercise, were more likely to exercise and this finding is largely supported by the evidence in the literature (17, 34). One proposal is that a general campaign of the importance of exercise should be established using the media to disseminate this information. In addition, regular physical education classes should be re-established at schools emphasizing the health benefits of exercise, as well as promoting cooperative, fitness oriented activities rather than competitive activities. From the perspective of the healthcare provider; primary care physicians and nurses at both the private and public institutions should have on-going training on the benefits of regular exercise in addition to being encouraged to be involved in exercise programmes with their patients, for example organized walks. It was revealed that patients welcomed advice from their health-provider; we suggest that this advice should be opportunistic as well as structured, practical and with reasonable goal-setting. Two important areas that need to be considered when advising, especially sedentary individuals, is time management and accumulating daily exercise.

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