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Title: Physical Activities, Knowledge, Attitude and Perception towards Cancer
among University Students

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**PHYSICAL ACTIVITIES, KNOWLEDGE, ATTITUDE, AND PERCEPTION
TOWARDS CANCER AMONG UNIVERSITY STUDENTS.**



Submitted in fulfilment of requirements

For

HUEC 3012

THE UNIVERSITY OF THE WEST INDIES



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Abstract

Cancer is a class of diseases characterized by out- of control cell growth. There are an increasing number of deaths from cancer among both young and persons internationally and regionally. Cancer is not a respecter of persons. There is a need for information on the disease. The increase in cancer cases allows for research on the physical activities, knowledge, attitude, and perception towards cancer among university students.

Objectives:

To investigate physical activities, knowledge, attitudes, and perception towards cancer among university students. Additionally to look at how knowledge of the disease affects health and behaviour as well as risk factors for acquiring the disease.

Design:

The study design was a cross-sectional study. The data collection method was quantitative methodology. The research instrument used was a questionnaire.

Setting

Data was collected from the UWI (St. Augustine) student population

Participants

Convenient sampling was done on approximately 100 participants who were currently attending UWI.

Results

Results showed that Thirty-two point three per cent (32.3%) of the participants were at perceived cancer risk. Perceived risk was linked to the knowledge of dietary factors that influence the development of cancers .The risk factors that had the highest level of awareness, were smoking (93.4%) not being physically active. Seventy-seven point two per cent (77.2%) of the participants were aware of the links between family history and cancer risk .Awareness of smoking was significantly associated with an increased cancer risk.

Conclusion:

Perception of the risk factors of cancer was associated with dietary behaviours among students. The perception of the risk of developing cancer was also associated with the risk factors for cancer.

Research Question:

Is cancer risk perception associated with lifestyle behaviours among university student?

(A health belief perspective)

AIMS/ OBJECTIVES:

To investigate physical activities, knowledge, attitude and perception towards cancer among university students. Additionally to look at how knowledge of the disease affects health and behaviour; as well as risk factors for acquiring the disease.

CHAPTER 1

Introduction

Background

Cancer is one of the leading causes of death worldwide. Cancer is a disease that has been known since ancient times. This deadly disease is what is known as one of ‘‘the failures of medicine.’’ The disease has been investigated by medical personnel’s for years, but is one for which no cure can be found. Just as coronary heart disease, diabetes, or any other infectious and deficiency disease, cancer is chronic. The underlying causes of cancer are environmental, just as any other disease.

Cancer rates have been the highest in the Caribbean and Latin America. The PAHO (Pan American Health Organisation) reports show that Latin America and the Caribbean account for approximately 50% of cancer deaths in the Americas, although they account for 63% of the hemisphere’s population. Cancer rates vary for men, but are typically higher in men, driven by high rates of lung and prostate cancers

In Latin America and the Caribbean, the majority of cancer deaths are due to prostate cancer followed by lung cancer, cervical cancer and colorectal cancer. According to the PAHO (Pan American Health Organisation, 2013) Trinidad and Tobago has one of the region’s highest cancer mortality rates. According to the ‘‘Cancers in the Americas Country Profiles 2013, ‘‘cancer is definitely the second leading causes of death in the Americas. The disease claimed an estimated 1.3 million lives each year and is still claiming lives. (Neaves 2013) , reported that the chairman of the Trinidad and Tobago Cancer society Dr. Jacqueline Pereira Sabga said that PAHO /WHO considered Trinidad and Tobago as one of the three countries in the region with

the highest cancer mortality rates and this should be a “ wake up call “ to citizens to get themselves screened. The article indicated that Trinidad and Tobago, Cuba and Argentina had the highest cancer mortality rates in the Americas, while Mexico, Nicaragua and El Salvador had the lowest.

There were 1,741 cancer deaths in Trinidad and Tobago in 2008 and obesity was a major cancer risk factor (Neaves 2013). Cancer was the highest in the English Speaking Caribbean including Trinidad and Tobago. Trinidad and Tobago has approximately two hundred and fifty cases of cancer per year. Breast cancer accounts for about 125 deaths per year. This gives an incidence death ratio 2:1. This was quite high compared to data from the developed world (Neaves 2013).

Breast cancer is one of the commonest causes of death from cancer among women worldwide and Trinidad and Tobago. In general, the mortality from breast cancer in developing countries is less than from developed ones (Luciani 2013). . For example in 2002 breast cancer mortality in India was 10.4 and in Brazil 14.1 compared to 19.0 and 24.3 per 1000,000 in the USA and UK respectively (Neaves 2013). Research has observed that for every two (2) women with breast cancer in Trinidad, one would die from cancer. The ministry of health in Trinidad and Tobago has put in place measures to reduce cancer mortality including being one of the few countries that started using the HPV (Human Papilloma Virus) vaccine to prevent cervical cancer(Neaves 2013).. The Ministry of Health Personnel’s indicated that Trinidadians have a way of not wanting to be screened for cancer but more people need to be screened (Neaves2013).

CHAPTER 2

Literature Review

The objective of this section is to provide a clear picture of how lifestyle and knowledge of risk factors of cancer, impact attitude and behaviour towards the disease. This is important because if change has to occur, then the process affecting such change must be understood. Behavioural intervention strategies, focusing on the Health Belief Model and Tran's theoretical model will be reviewed in this section. A review of the published literature on the risk factors and lifestyle practices that impact the prevalence of cancer will be looked at. However, the Literature review will first highlight the major risk factors contributing to the development of cancer and also highlight the economic burden and impact of cancer globally and more specifically the Caribbean, thereby emphasizing the need for action in the region. Finally, the individual and societal threats of this catastrophic disease and the need for a multi-factorial, integrated approach in the treatment and prevention of cancer will be discussed.

The oxford dictionary defines cancer as:

- 1) A disease caused by an uncontrolled division of abnormal cells in part of the body.
- 2) A harmful growth or tumour resulting from an uncontrolled division of abnormal cells.
- 3) Something evil or destructive that spreads quickly and is hard to destroy.

It is likely that cancer has always been a human disease. The estimated amount of main cancer sites in the human body is eighteen (18). These eighteen (18) cancer sites include the mouth and pharynx, naso-pharynx, larynx, oesophagus, lung, stomach, pancreas, gall bladder, liver, colon, rectum, breast, ovary, endometrium, cervix, prostate, thyroid, kidney and bladder.

Lifestyle related factors are a major determinant in the acquisition of the disease cancer. It was found that tobacco was responsible for 25% - 40 % of cancers, and diet for 10 %- 70 % of cancers. In Kerala, tobacco was responsible for 25%- 40% of cancers, and diet for 10%-70% cancers (Regional cancer centre Thiruvanantharuram 2011).

More than one hundred thousand (100,000) cases of cancers diagnosed in the UK each year can be directly attributable to cigarettes, diet , alcohol and obesity , and this figure rises to 134, 000 when taking into account over a dozen lifestyle and environmental risk factors (Paddock 2011). Catharine Paddock in her article quoted Professor Max Parkin, a Cancer Research UK epidemiologist based at Queen Mary, University of London. The professor said “Looking at the evidence, it’s clear that 40% of all cancers are caused by things we mostly have the power to change.” Catharine Paddock’s study indicated that smoking is by far the greatest culprit, causing some 23% of cancers in men and 15.6 % in women (Paddock 2011). Catharine’s articles also indicated that of the 158, 700 cancers diagnosed in men each year, tobacco use was listed as one of the top six (6) risk factors. Tobacco use in men was 23% (36,500 cases). Of the 155,600 cancers diagnosed in women each year, the top six risk factors were tobacco use 15.6% (24,300 cases). (Paddock 2011).

David Brewster (Lung cancer on the rise 100 cases a year) indicated that World Health Organisation states that by year 2020, tobacco- related illnesses will be the leading killer responsible for more deaths than AIDS, tuberculosis, road accidents , murder and suicide put together(Brewster 2002). WHO announced that every eight (8) seconds someone dies from tobacco use, and research suggest that for people who start smoking in their teens (more than 70% do); and continue for two or more decades or will die 20 – 25 years earlier than those who never light up(Brewster 2002). Brewster’s article pointed out that Trinidad

and Tobago's Dr. Albert Persaud director of the Caura hospital, and consultant in respiratory diseases; said the incidence of lung cancer in Trinidad and Tobago is on a rise (Brewster 2002). Brewster's article looked at the link between smoking and cancer. In his article, he indicated Dr. Persaud's message on the link between smoking and lung cancer and this is what Dr. Persaud had to say:

“Today we know that smoking is the main cause of lung cancer. Ninety eight per cent (98%) of patients who get lung cancer in Trinidad and Tobago were smokers; most of them were men, smoking twenty (20) cigarettes a day. Second hand smoke (smoke inhaled from smokers) was a high risk factor, and warned non-smokers to avoid inhaling the deadly fumes from smokers (Brewster 2002). While people may refer to many smokers, living well into their 80's and 90's, there was no justification for that line of argument. This line of argument was like blindfolding pedestrians and asking them to cross the highway some may escape unhurt, but many will be knocked. Smoking is also linked with cancers of the mouth, throat, pancreas, cervix, kidney, and bladder and causes other debilitating diseases such as emphysema, chronic heart disease, vascular disease, stroke, and chronic respiratory failure.”

Of great concern, was Persaud's frightening statement that one in every three (3) Trinidadians will die from cancer; while lung cancer was one of the most difficult cancers to cure, it is one of the easiest to prevent through a conscious choice not to smoke. Breathing in second hand smoke can cause cancer (Brewster 2002). ” UK research pointed out that second hand smoke can increase a non-smoker's risk of getting lung cancer by quarter, and may also increase the risk of cancers of the larynx (voice box) and pharynx (upper throat).

Diet and Cancer

Diet has a major role to play in the development of cancer. The foods we eat is a determinant in whether an individual gets the disease or not or whether an individual who has cancer, survives the disease or not. Until the 1990's, the idea that diet is crucial to the prevention of cancer was still considered unorthodox (AICR, WHO). To date literally thousands of studies consistently show correlations between fruits and vegetables consumption and lower cancer risk (AICR and WHO). Taken together this evidence amounted to proof of a causal relationship beyond any reasonable doubt. The study indicated that the medical fraternity continues to recommend daily consumption of 5 to 9 servings of vegetables and fruits (AICR, WHO). Looking at diet as it relates to cancer; there has been much talk about the reduction and limitation of meat from the diet; and the transition and introduction of vegetables in the diet. Several researches have shown that meat, when heated for example, grilled meat; releases carcinogens called HCA (Hetero cyclic Amines) (Lambe1815) warned against the danger of excess consumption of food in general and meat in particular (Regional Cancer, Thiruvananthapuram2011). The regional Cancer centre in the article lifestyle and cancer; indicated that Roger Williams in 1908 observed that excessive feeding especially meat, deficient exercise and probably lack of vegetable food are the predisposing factors of cancer(Regional cancer centre 2011). (Orr 1933) who undertook a study in Travancore on oral cancer identified low intake of vegetables and fruits as risk factors (Regional Cancer Centre, Thiruvananthapuram) suggested that the role of diet takes special importance in countries like Indian had a predominantly plant based diet and with the advent of western lifestyle, they are moving towards a diet rich in animal proteins. This coupled with other habits like smoking and alcohol will lead to increase in chronic diseases burden especially cancer and cardiovascular

diseases. Prompt action has to be taken to spread the message of a healthy lifestyle and dietary practices (Regional Cancer centre, Thiruvananthapuram). To decisively demonstrate lifestyle causes cancer, Vincent researched that a third of the cancers are caused by what we eat. (Vincent 2009). To further reinforce that lifestyle causes cancer, Vincent recommends no more than 500 grams of these a week.

In a study done by the UK cancer research, it was found that regular alcohol consumption could increase the risk of Mouth cancer, Pharyngeal cancer (upper throat), Oesophageal cancer (Food pipe), Laryngeal Cancer (voice box), Breast Cancer, and Liver Cancer. The risk is not just increased for heavy drinkers. The risk occurs even at low levels, far too low to make an average person drunk. It's not just people who drink very heavily, who have higher risk. Regularly drinking a pint of premium lager or a large glass of wine a day or less can increase the risk of mouth, throat, oesophageal (food pipe), and breast and bowel cancer (UK cancer research, 2014). The more alcohol you drink, the higher the risk of developing cancer and other disease. The study also indicated that all types of alcohol increase the risk of cancer (UK cancer research, 2014). It is alcohol itself that leads to the damage, regardless of whether it is wine, beer, or spirits (UK Cancer Research). People who smoke and drink multiply the risk of certain cancer, because tobacco and alcohol work together to damage the cells of the body.

When looking at cancer as it relates to the environment; living conditions and social interactions ever more so continue to show that, they can affect tumour progression (National Cancer institute 2010). Researchers continue to show overtime that the onset of cancer has a relationship with the environment. It is outrageous that people who are exposed to cancerous chemicals are unaware of it. This issue is what is causing the increase cases of cancer. There are hundreds of cancers causing substances in the environment. To name a few: Arsenic, Asbestos,

Benzene, Bisphenol A (BPA), Chromium Hexavalent Compounds, Dioxins, Formaldehyde, Polybrominated diphenylethers (PBDEs), Polycyclic aromatic hydrocarbons (PAH), Vinyl chloride (National Cancer Institute 2010).

A stressful environment or periods of stress can also influence cancer. Research has looked at the incidence of breast cancer and has found that a correlation with multiple life stressors (Stress and Breast Cancer- Breast cancer Prevention Strategies, 2008).

Daily life activities have a role in preventing some cancers. Studies have shown that body weight reduces recurrence of cancer (UK Cancer Research 2014). Exercise has been one of the best remedies and therapy for much overtime (UK Cancer Research 2014). Exercise of course fatigues the body; Exercise as a preventative method for cancer continues to be questionable. People who engage in moderate to vigorous levels of physical activity are at lower risk of developing colon and breast cancer than those who do not. (UK cancer research 2014).It was observed that risk was lowered whether or not the activity affects the person's weight (Cancer research 2014).

Health Belief Model

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviours. This is done by focusing on the attitudes and beliefs of individuals. The health belief model was first developed in the 1950's by social psychologists Hoch Baum, Ronsenstock and Kegels working in the U.S Public Health Services. (University of Twente). The model was developed in response to the failure of a free tuberculosis (TB) health screening program. Since then, the HBM has been adapted to explore a variety of long and short –term

health behaviours, including sexual risk behaviours and the transmission of HIV/ AIDS (University of Twente).

The Health Belief Model (HBM) is by far the most commonly used theory in the health education and health promotion. This model predicts the likelihood of action. It has six key concepts:

- 1) Perceived Susceptibility- One's belief of the chances of getting a condition.
- 2) Perceived Severity – One's belief of how serious a condition and its consequences are.
- 3) Perceived Benefits – One's belief in the efficacy of the advised action to reduce risk or seriousness of impact.
- 4) Perceived Barriers – One's belief in the tangible and psychological costs of the advised behaviour.
- 5) Cues to Action - Strategies to activate "readiness."
- 6) Self- Efficacy – Confidence in one's ability to take action.

Hence, according to the health belief model action or behavioural change about one's health will only occur, when an individual first perceives themselves susceptible, perceives the condition and consequences to be serious, perceives the benefits of action far outweighing the perceived cost, have the necessary cues to action and have a high degree of self-efficacy.

The Health Belief Model has practical application in preventative Health Behaviours, which includes health promoting behaviours, such as diet and exercise and health- risk behaviours, such as smoking.

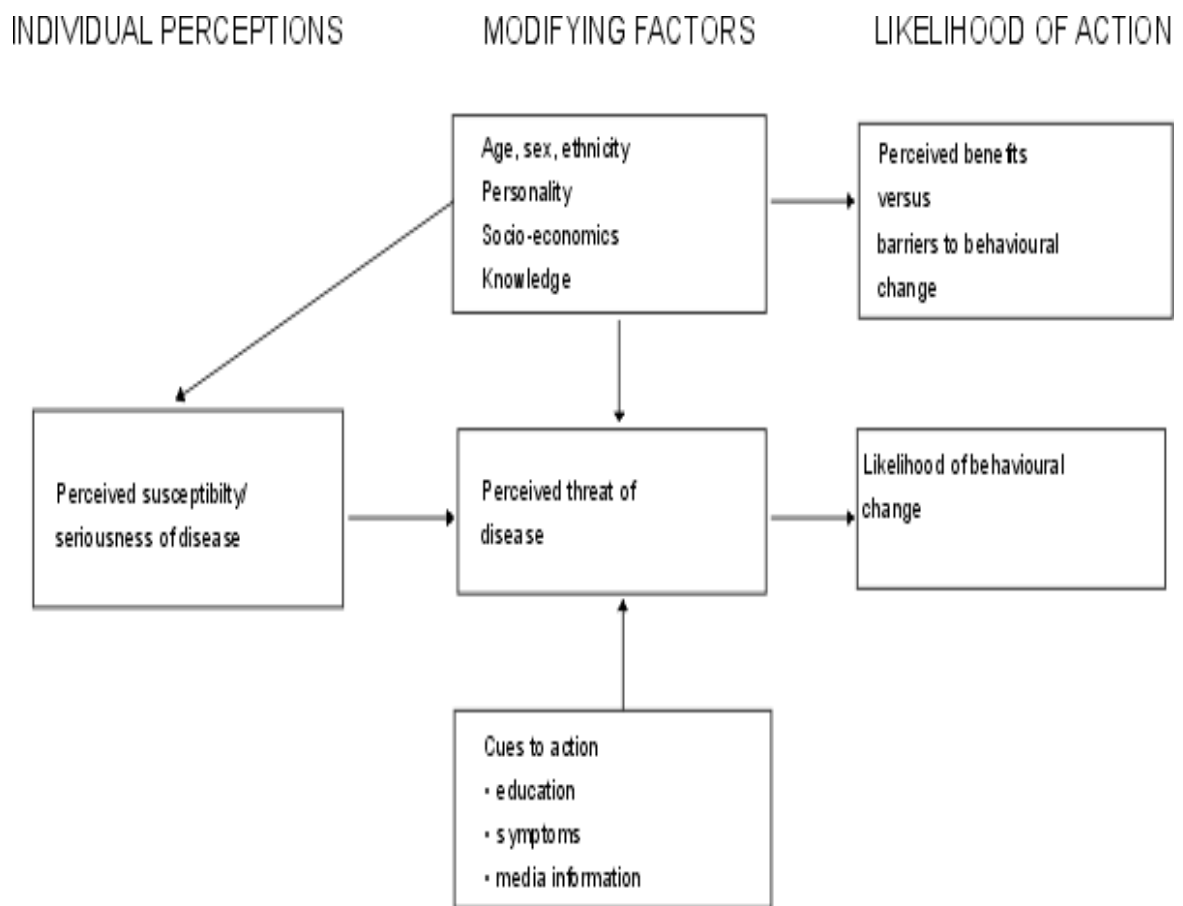


Diagram illustrating the Health Belief

model.Source:<http://www.bing.com/images/search?q=photo+of+health+belief+model&qpv=photo+of+health+belief+model&FORM=IGRE#view=detail&id=1738E4595D3133B3E82342895726425A54454F00&selectedIndex=30>

A study entitled (Breast Cancer knowledge, beliefs and screening behaviours of college women: Utilization of the health belief model) indicated that participants in the study had a low level of perceived susceptibility towards breast cancer, as well as relatively low overall breast cancer knowledge (Guilford 2011). The findings in this study also revealed a significant association between ethnicity, year in school, and family history of breast cancer and participants' general degree of breast cancer-related worry. This study also indicated that of the Health Belief Model constructs, confidence and perceived barriers were found to significantly predict breast self-examination (Guilford 2011).

Stages of change /Tran's theoretical model

The stages of change model or a stage of change theory was developed in 1982 by psychologists to compare smokers in therapy and self –changers along a behaviour change continuum (Diclementes's 2009). The rationale behind “staging “people as such, was to tailor therapy to a person's needs at his/her particular point in the change process. The four major concepts of the stages of change theory include:

- Pre-contemplation
- Contemplation
- Action
- Maintenance

Later a fifth preparation for action

The stages of change model consist of several concepts developed from previous models. The health belief model and other behavioural model fit into this framework. The model implies that the patient will move from being uninterested, unaware or unwilling to make a change in health (pre-contemplation), to considering a change (contemplation), to deciding and preparing to make a change (preparation). Authentic action is then taken (overt change) and, overtime, attempts to maintain the new behaviour occur (maintenance).Relapses are almost certain and become part of the process of working toward a lifelong change.

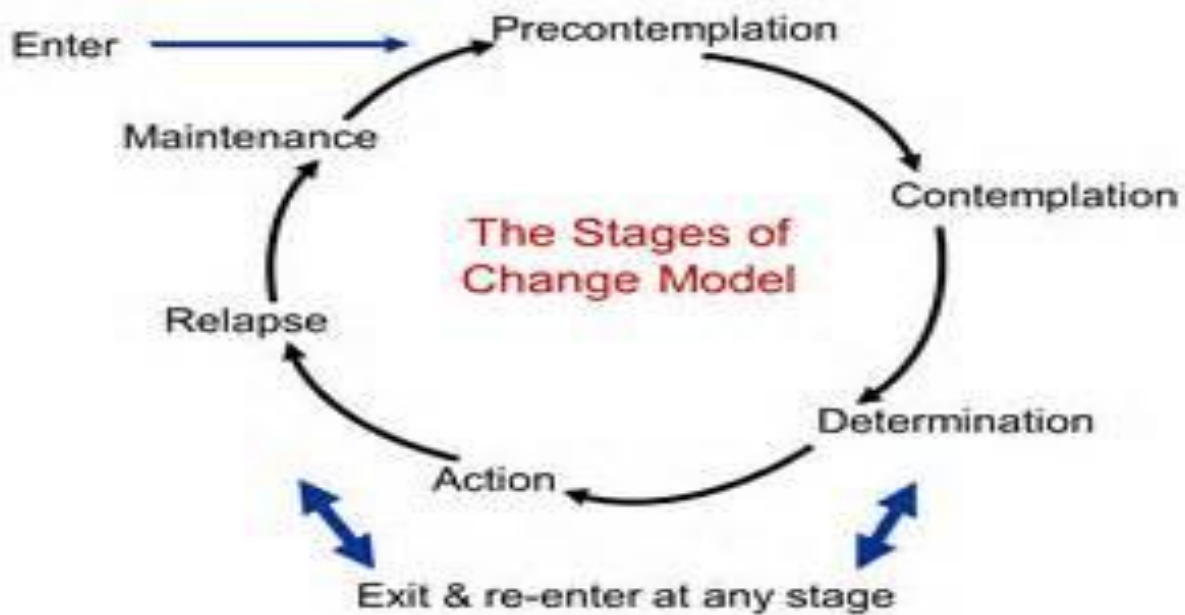


Diagram of the Stages of change model

Source: <http://www.bing.com/images/search?q=photo+of+stages+of+change+model&qpv=photo+of+stages+of+change+model&FORM=IGRE#view=detail&id=BF350E2791B593F6DC011B24E9EF40BE8871B2DA&selectedIndex=2>

Successful interventions

The college years provide a great opportunity for health intervention strategies (Guilford 2011). This study suggested that health program planners should aim to develop interventions that are adapted to address the unique needs of women who are transitioning from adolescence to adulthood. These interventions should centre on self-efficacy of breast cancer screening and reducing barriers (Guilford 2011). Education based programs are also needed to increase women's overall knowledge and awareness of breast cancer-related issues. Guilford's study stated that such strategies have great potential to enhance women's quality of life and positively influence those with whom they closely interact. (Guilford 2011).

Education plays a pivotal role in the epidemiology of cancer. (Rogden et. al) in a research article entitled (Oral cancer awareness of undergraduate medical and dental students) found that both medical and dental students identified the smoking of tobacco as a risk factor (Rogden 2007). However, significantly more dental students identified alcohol, as a risk factor for oral cancer has to be emphasised in future teaching of undergraduate medical students. However, knowledge of other risk was poor in both medical and dental students (Rogden 2007). There was a trend toward increased risk factor identification from second to fifth year medical students and from third to fifth year dental students. (Rogden 2007). Comparison of risk factor knowledge amongst students at different years of training can be difficult to interpret as curricular factors, public awareness campaigns and changes in faculty can contribute to changes in risk factor knowledge (Rogden 2007). Rogden's study indicated that oral cancer awareness of medical students could be improved by maximising the opportunities for teaching regarding oral health disease within already crowded medical curricula. (Rogden et. al 2007). Unfortunately, oral health has traditionally received little emphasis in medical curricula in the past.

Opportunities for clinical teaching regarding oral cancer for medical undergraduates may present during clinical attachments in Oral and Maxillofacial Surgery, Otorhinolaryngology, Plastic Surgery or clinical Oncology.

Cancer is not a disease that is affecting just older generations. Out of the nearly 57,000 cases of cancer in Ohio, 5,700 of these cases were college-aged students (Veppert 2009). Cancer is the fourth leading cause of death among college aged students. Cancer comes behind only unintentional injuries, homicide, and suicide. Shelby Veppert in his article asked, “If cancer is killing so many college aged students, why isn’t it being talked about?”

This writer also stated that there are so many ways to get the word out in order to help college students protect themselves and raise awareness to help beat out cancer.

The level of cancer education would determine individuals’ awareness of cancer (Veppert 2009). Awareness of cancer is important since the Health Belief model and Stages of change model both emphasize that behavioural modification can only occur after awareness becomes evident by individuals. Thus, with awareness the individual will realize their tendency to get the disease, they will also believe that the consequences of cancer as being serious and thus perceive cancer as a threat to themselves.

Cancer is a disease that is hitting college students and young adults nationwide (Veppert2009). Regardless of race, ethnicity, gender, orientation, or political views, everyone is at risk. Cancer does not discriminate. It is not some disease of the future, it is affecting college students, and it is affecting them now (Veppert 2009). Thus, there is an urgent need for information on the disease to equip educators, health care practioners and policy makers with tools necessary to make the best, most informed decisions. It is thus, with this rationale, the

research on knowledge of cancer and its association with a healthy lifestyle among university students (A health belief perspective) was conducted.

CHAPTER 3

Methodology

The study population comprised of individuals pursuing their studies at the University of the West Indies (UWI) ST. Augustine Campus. Data collection is important when conducting a research. Collecting accurate data is essential to maintaining the reliability of the research. The administering of 100 questionnaires was required for this research. However, there was the distribution of 107 questionnaires to the study population, in order to compensate for any unreturned questionnaires. The purpose of the questionnaire was stated. Confidentiality of the participants' information was also ensured. It was also ensured that the questionnaires looked professional and was made as easy as possible to fill out.

STUDY DESIGN

The study was a cross-sectional study. Cross-sectional method of study uses questionnaires as a tool of analysis. Cross-sectional studies work at a one-time point or over a short period. Cross-sectional studies estimates the prevalence of the outcome of interest for a given population, commonly for the purposes of public health planning. Cross-sectional studies also investigate associations between risk factors and the outcome of interest.

Constructed questionnaires were useful to conduct this survey. This questionnaire aimed at determining the level of knowledge, attitude, and behaviour towards cancer among university students. Participants filled out the questionnaire consisting of socio-demographic, knowledge, perception, and behavioural items.

The dependent variables measured were, knowledge, belief, perception and attitude about cancer. The questions tested knowledge, perception, and attitude about cancer. Individuals'

perception of risk factors for cancer was tested via question 19. Question 19 asked respondents their opinion of contribution risk factors for developing cancer.

The independent variables measured were education level, medical history, and risk perception of cancer. Lifestyle factors such as diet, smoking, exercise and stress levels were also measured to determine their link and dependent variable. Individuals' risk perception of cancer was a major variable measured due to implications of risk on knowledge and behaviour. Self-reported weights and heights were obtained to ascertain risk levels with respect to Cancer. Body image perception was ascertained via silhouettes.

Hypotheses Testing

Hypothesis 1:

Null Hypothesis:- the level of knowledge is not associated with belief of risk of cancer.

Alternated Hypothesis:- the level of knowledge is associated with belief of risk for cancer.

Hypothesis 2:

Null Hypothesis:-

Knowledge and belief with respect to cancer is not associated with socio-demographic factors.

Alternate Hypothesis:- knowledge and belief with respect to cancer is associated with demographic factors.

Criteria for Hypothesis Testing

Null hypothesis is rejected when $P < 0.05$ and accepted when $P \geq 0.05$.

The sample for this research was a convenient sample. Convenience sampling is also known as grab, opportunity, accidental or haphazard sampling. This method allows the researcher to access easy to reach subjects.

In research methods, there are two primary classifications for sampling methods: non-probability and probability. With probability sampling methods, all possible subjects out of a population have some chance of being included in the sample. Researchers can even calculate the mathematical probability of one of them being selected. They can also calculate sampling error, which is the degree to which the sample might differ from the actual population.

Convenience sampling is a no probability method. This means that subjects was chosen in a non-random manner, and some members of the population have no chance of being included. With no probability sampling, there is no way of calculating how well your sample represents the population as a whole. In general, probability sampling is more stringent and accurate than no probability sampling, but it is not always feasible. Since time and cost was a factor, convenience sampling was most appropriate for this research.

Sample size:

In order to compensate for the respondents' losses .One hundred and seven (107) questionnaires were handed out to the University students. One hundred and seven (107) questionnaires was collected by analysis and this represented a response rate of approximately 100%. A sample size was not actually calculated.

Procedure:

The questionnaires had individual identification numbers assigned to them, and then distributed to the study population. Keeping records of all the distributed questionnaires minimized data loss. All the information collected remained confidential.

Reliabilities

The questionnaire as a form quantitative data collection allows for the quick efficient contact of a large number of people. Questionnaires are relatively quick and easy to create code and interpret. The questionnaire is easy to standardise as it asked all the participants the same question in the same way. This ensured that everyone in the sample answered exactly the same questions. This makes the questionnaire a very reliable method of research. The data collected from the questionnaire was quantitative. Quantitative data produces results that are easy to summarize, compare, and generalize. It allows the hypothesis derived from theory to be tested and allows the size of a phenomenon of interest to be tested.

Data Analysis

Statistical Package for the Social Sciences (SPSS for windows release 12) performed the statistical analyses. All the data were checked for errors before analysis and the necessary corrections were made. Descriptive analyses, frequencies, and means were used to summarize data. The Chi-square summarized the data and determined differences in categorical variable (e.g. age, level of education etc.) The Chi-square test was useful for estimating how closely an observed distribution matched an expected distribution.

CHAPTER 4A

Results Tables

Table 1

Variable	Females N=57	Males N=50	P
Age (years)	22.8(6.1)	24.7 (8.9)	0.20
Height (inches)	61.3 (10.2)	68.1(10.6)	0.001
Weight (lbs.)	128.8 (38.4)	147.5(53.0)	0.042

BMI (lbs./inches)	24.3 (8.1)	21.4 (7.9)	0.07
Marital Status			
- Single	48(85.7%)	38(77.6%)	
- Married	8(14.3%)	11 (22.4%)	0.21
Ethnicity			
- Indo	17(30.9%)	14 (28.6%)	
- African	26(47.3%)	17 (34.7%)	
- Indo African	7 (12.7%)	12(24.5%)	
- Other races	5 (9.1%)	6 (12.2%)	0.27

*All bracketed values are percentages. Statistically Significant P values occur when $P \leq 0.05$.

r^2 =regression values.

Results Table 2 shows: Correlation between perceived risk of developing a cancer and dietary and physical activity behaviour adjusting for age, sex and ethnicity.

Variable					
Whole grain	$r^2=0.26$ $p=0.007$	Sodas	$r^2=0.07$ $p=.48$	BMI	$r^2=.032$ $p=.745$
Dairy	$r^2 =0.25$ $p=0.009$	Beer	$r^2=.99$ $p=.001$	Low Physical Activity	$r^2=.017$ $p=.861$
Dark leafy green/vegetables	$r^2 =0.20$ $p=0.04$	wine	$r^2= -.138$ $p=.156$	Moderate Physical Activity	$r^2=.124$ $p=.204$
Fruits	$r^2=0.20$ $p=0.04$	water	$r^2=.040$ $p=.593$	High Moderate physical Activity	$r^2=.145$ $p=.137$
Soya	$r^2=0.04$ $p=0.72$	Whiskey	$r^2=-.026$ $p=.788$		
Convenience Foods	$r^2=.101$ $p=.301$	Process snacks	$r^2=.040$ $p=.680$		

Fast Foods	$r^2=0.22$ $p=0.02$	Red Meat	$r^2=.089$ $p=.362$		
Nuts	$r^2=0.27$ $p=0.05$	Fried Food	$r^2=.083$ $p=.398$		

Results Table 3: Correlation values between perceived risk of developing cancer and awareness of cancer risk factor.

Variable			
Stress levels	$r^2=.337$ p=.000	High red meat intake	$r^2=.045$ p=.646
Family history	$r^2 =.161$ p=.098	Low veggie intake	$r^2 = -.002$ p=.981
Low Physical Activity	$r^2=0.20$ p=0.04	Low fruit intake	$r^2=.016$ p=.874
Diabetes	$r^2=0.20$ p=0.04	Smoking	$r^2 =-.021$ p=.830
Alcohol intake	$r^2=0.04$ p=0.72		

High fat intake	$r^2=.101$ $p=.301$		
age	$r^2=-.027$ $p=-.046$		
Low fibre	$r^2=0.27$ $p=0.05$		

*Statistically Significant P values occur when $P \leq 0.05$.

r^2 =regression values.

Correlations

		cancer risk
cancer risk	Pearson	
	Correlation	1.000
	Sig. (2-tailed)	.
	N	107
Body shape current	Pearson	
	Correlation	.084
	Sig. (2-tailed)	.392
	N	107
Body shape desired	Pearson	
	Correlation	.064
	Sig. (2-tailed)	.509
	N	107
BMI	Pearson	
	Correlation	.032
	Sig. (2-tailed)	.745
	N	105

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Correlations

		cancer risk
cancer risk	Pearson Correlation	1.000
	Sig. (2-tailed)	.
	N	107
low to moderate	Pearson Correlation	.070
	Sig. (2-tailed)	.473
	N	107
moderate to high	Pearson Correlation	.124
	Sig. (2-tailed)	.204
	N	107
high PA	Pearson Correlation	.145
	Sig. (2-tailed)	.137
	N	107

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Correlations

		cancer risk	level of activity		
cancer risk	Pearson	1.000	.032		
	Correlation				
	Sig. (2-tailed)			.	.745
	N			107	107
level of activity	Pearson	.032	1.000		
	Correlation				
	Sig. (2-tailed)			.745	.
	N			107	107

Table 4 shows: Awareness of cancer risk factors among participants

Factor2	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Family history	3.7	12.1	6.5	48.6	28.9
Not being physically active	2.8	8.4	2.8	48.6	12.1
Diabetes Mellitus	6.5	9.3	51.4	26.2	6.5
Frequent alcohol intake	2.8	15.9	19.6	51.4	10.3
Frequent high fat intake	0.9	1.5	26.2	46.7	18.7
Increasing age	2.8	15.9	27.1	41.1	13.1
Frequent low fibre intake	2.8	15.0	37.4	40.2	4.7
Being overweight	2.8	10.3	26.2	39.3	21.5
Smoking	1.9	1.9	2.8	35.5	57.9
High frequent intake of red meats (beef, pork)	0.9	9.3	35.5	41.1	13.1
High frequent intake of processed meat	1.9	5.6	26.2	43.9	22.4
Low vegetable intake (≤ 2 servings)	4.7	11.2	26.2	40.2	17.8
Low fruit intake in take (≤ 2 servings)	4.7	11.2	28.0	39.3	16.8
Frequent high stress levels	0.9	6.5	29.9	40.2	22.4

CHAPTER 4B

Results:

Table 1 shows the anthropometric characteristics of participants by sex. There was no statistically significant difference in the age by sex ($P=0.20$). Both males and females had the highest percentage of participants in the 22-24 age bracket; with high standard deviations for both male and females. There was no statistical significance in the ethnicity reported by females as compared to those reported by males ($p=0.27$). The three (3) main ethnicities reported were Indo, African and Indo-African. Other races were also reported. The Africans had the greatest response in both males and females with 26% and 17% respectively. There proved to be no statistically significant difference in marital status among males and females ($P=0.21$). The survey reported a percentage of 85.7% single females and 77.6% single males. The percentages of married females were less than the percentage of married males i.e. 14.3% married females and 22.4% married males. There was a statistically significant difference in height by sex ($P=0.001$). The average height for male respondents was 68.1 inches and for female it was 61.3 inches. The standard deviations were 10.2 and 10.6 respectively. Males were significantly taller than females.

There was a statistically significant difference in weight between males and females ($P=0.042$). The average weights between male and female were 128.8 for females and 147.5 for males respectively. The standard deviation values reported were 38.4 for females and 53.0 for males.

BMI values were reported as not statistically different for both male and female ($P=0.07$). The average BMI values for males was 21.4 with a standard deviation value of 7.9 and females had a BMI of 24.3 with standard deviation of 8.1 and 7.9 respectively.

The regression value (r^2) indicated the strength of the relationship between one dependent variable and a series of other changing variables known as independent variables.

Table 2 shows the correlation between perceived risk of developing cancer and dietary and physical activity behaviour for age, sex, and ethnicity. Whole grain, dairy, dark leafy green / vegetables, fruits, fast foods and beer were a significant part of the participants diet. The foods that did not play a significant part of the participant's diet were sodas, convenience foods water, processed snacks, red meat, and fried foods. Among the risk factors, activity factors such as low physical activity, moderate physical activity and high moderate physical activity had no significant risk of developing a cancer. Table 3 shows correlation between perceived risk of developing cancer and the awareness of cancer risk factors. Risk factors such as stress levels, low physical activity, diabetes, age and low fibre were statistically significant. Factors such as family history, high fat intake, high alcohol intake, high red meat intake, and low vegetable intake, low fruit intake, smoking and overweight were not statistically significant.

Table 4 shows the valid percentages for the awareness of cancer risk factors among the participants. The risk factors, which had the highest percentage of level awareness, were smoking and not being physically active. The percentages were 77.2% for family history and 93.4% for smoking.

CHAPTER 5

Discussion:

The study measured the perceived susceptibility of cancer risk among the University population as it sought to find out the extent to which cancer risk perception was associated with lifestyle behaviours among University students. The anthropometric characteristics of participants by sex were measured. Anthropometric characteristics indicated the respondents level of knowledge of their body and their nutritional status. In this study, 32.3% of the participants were found to be at perceived risk of cancer. There was a significantly positive association between developing cancer and the consumption of whole grain, dairy, vegetables, fruits and nuts. People who had a perceived increase risk of developing cancer were also drinking more beers and consuming higher quantities of fast foods. These findings suggested that participants who perceived an increased risk of developing cancers may be knowledgeable of the dietary factors which influence development of cancers. This is similar to findings from a study done by AICR (American Institute for Cancer Research) and WHO which indicated that to date, literally thousands of studies consistently show correlations between fruits and vegetables consumption and lower cancer risk. Supporting studies for these results were done by Key et. al who found low rates of colorectal cancer in Africa were due to high consumption of dietary fibre and there are several plausible mechanisms for a protective effect. A research study done by Pavia et.al also found that the consumption of fruit and vegetables was associated with a reduced risk of oral cancer. Pavia's study also showed that there was a significant reduced risk associated only with fruit consumption in men. The opposite occurred in studies conducted in women only, in which a significant risk reduction was observed only with vegetable intake. Adequate awareness risk factors for cancer were found in this study. In this, group smoking and family

history of cancer were the best-known risk factors for cancer. Less than half of the sample knew that low fibre intake and diabetes mellitus were risk factors for developing cancers.

Approximately one –third of the sample perceived them to be at increased risk of developing cancer. Less than sixty per cent of the sample were aware that decrease vegetable intake, fruit intake, increase red meat consumption, increase in age , frequent alcohol intake and decrease fibre intake was associated with the risk of developing cancer. This suggested that there is need for interventions aimed at improving knowledge and awareness of cancer risk factors among university students. This is important as cancers are ranked the number two (2) cause of death in Trinidad and Tobago. The above study done by Brewster supported this finding. Brewster highlighted that Ninety eight per cent (98%) of patients who get lung cancer in Trinidad and Tobago were smokers; most of them were men. Second hand smoke (smoke inhaled from smokers) was a high risk factor, and warned non-smokers to avoid inhaling the deadly fumes from smokers

Conclusion

Among participants, perception of the risk factor of cancer was associated with dietary behaviours among students. The perception of the risk of developing cancer was also associated with awareness of risk factors for cancer.

Limitations

- 1) A small 150 sample cannot be generalised for 18000 students at the UWI campus St. Augustine.
- 2) Results were not obtained from the Medical Sciences faculty at Mt. Hope Trinidad and therefore conclusion on the level of awareness among students attending that faculty could not be drawn.
- 3) Students were not randomly selected and this would introduce selection errors that can affect the estimate.

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APPENDICES – Copy of Questionnaires



Perspective

By Ashlee Stenlund

A wise man once said:

Cancer is a man's worst enemy

It leaves millions of families

Feeling depressed, and confused.

It kills men, women and children

Leaving them and their surroundings

To fear for their lives

It hurts people spiritually,

And it will always haunt man.

The daughter of a woman with cancer once:

Turned the disease into an opportunity

To help others going through the same rough times.

Decided to be strong

Realized how precious life really is

Never gave up

And never will

Because she has hope.

Hope for today

And hope for tomorrow

