TOWARDS A MORE EFFECTIVE HEALTH PROMOTION CAMPAIGN FOR DIABETES IN MAURITIUS

Hemant Kassean, University of Mauritius (Reduit), Mauritius

ABSTRACT
Over the past 2 decades, the prevalence of diabetes in Mauritius has remained one of the highest in the world with no recent significant improvement. Mauritius ranked 2nd in 2002 and 4th in the world in 2009 with nearly one in five of its adult population above the age of 30 years being affected. Nearly half of those affected do not know that they have the disease and this adversely influences quality of life, risks of complications as well as morbidity and mortality. Despite the availability of free health services, over 50% of diabetes patients are poorly controlled and the risk of complications from diabetes such as cardiovascular diseases, renal failure, blindness, peripheral vascular and neurological diseases leading to lower limb amputations, remain very high. Despite continued efforts from the MOH & QOL to provide easily accessible diabetes care to all patients, the outcome remains poor. Most of the outpatients and primary health care centres are overcrowded and the set-up does not provide optimal care and attention. Diabetes care is very much medical-orientated and the health promotion campaigns have had little impact so far. Prevention and control of diabetes although difficult and challenging must become a priority. There is an urgent need for enhanced health promotion and education, as evidence suggests that a change in diet and lifestyle can bring about significant improvement in the incidence and prevalence of diabetes. This paper examines the health promotion campaigns and discusses key strategies to make the campaign much more effective. Focused leadership and commitment, evidence from research, health literacy, psychology, marketing and the need for an evaluation are explored.

KEYWORDS
diabetes, high prevalence, Mauritius, prevention, health promotion

1. INTRODUCTION

The objective of this paper is to examine the previous and current health promotion campaigns in Mauritius and discuss strategies in terms of diet and lifestyle to make the campaign much more effective. Focused leadership and commitment, evidence from research, health literacy, psychology, marketing and the need for an evaluation are explored.

Diabetes mellitus can be found in almost every population in the world and epidemiological evidence suggests that, without effective prevention and control programmes, diabetes will likely continue to increase globally (Shaw, 1999). According to the International Diabetes Federation 2009, Diabetes mellitus (DM) is now one of the most common non-communicable diseases globally. It is the fourth or fifth leading cause of death in most high-income countries and there is substantial evidence that it is epidemic in many economically developing and newly industrialized nations. Complications from diabetes, such as coronary artery and peripheral vascular disease, stroke, diabetic neuropathy, amputations, renal failure and blindness are resulting in increasing disability, reduced life expectancy and enormous health costs for virtually every society. Diabetes is undoubtedly one of the most challenging health problems in the 21st century. It is now recognized that it is the low-and middle income countries (LMCs) that face the greatest burden of diabetes. However, many governments and public health planners still remain largely unaware of the current magnitude, or, more importantly, the future potential for increases in diabetes and its serious complications in their own countries.

1.1. Top 10 Prevalence of diabetes in the world

According to IDF (2009), Table 1, Nauru has the highest prevalence of diabetes in the world with 30.9% of the population being affected. Mauritius is 4th with 16.2% after the United Arab Emirates and Saudi Arabia. In 2002, the Mauritius ranked 2nd in terms of prevalence of diabetes in the world (IDF, 2002).
Table 1. Top 10: Prevalence * (%) of diabetes (20-79 years), 2009

<table>
<thead>
<tr>
<th>Country/Territory</th>
<th>2009 Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nauru</td>
<td>30.9</td>
</tr>
<tr>
<td>2. United Arab Emirates</td>
<td>18.7</td>
</tr>
<tr>
<td>3. Saudi Arabia</td>
<td>16.8</td>
</tr>
<tr>
<td>4. Mauritius</td>
<td>16.2</td>
</tr>
<tr>
<td>5. Bahrain</td>
<td>15.4</td>
</tr>
<tr>
<td>6. Reunion</td>
<td>15.3</td>
</tr>
<tr>
<td>7. Kuwait</td>
<td>14.6</td>
</tr>
<tr>
<td>8. Oman</td>
<td>13.4</td>
</tr>
<tr>
<td>9. Tonga</td>
<td>13.4</td>
</tr>
<tr>
<td>10. Malaysia</td>
<td>11.6</td>
</tr>
</tbody>
</table>


1.2. Prevalence of diabetes in Mauritius

The Non communicable Disease survey, (NCD) carried out in 2004 revealed that among adults above 30 years old, the prevalence of type 2 diabetes is 19.3 %. The majority of people in Mauritius (about 99%) have type 2 diabetes. The reason for this high rate of diabetes in Mauritius could be explained by a combination of risk factors such as physical inactivity, unhealthy diet and overweight, high prevalence of smoking and genetic background of the population. The rapid economic development the country experienced during the mid-eighties also led to changes in the lifestyle of the population. Most of the people with diabetes have poor control of their condition and consequently suffer from many of the complications of diabetes such as cardiovascular diseases, kidney failure, blindness, damaged nerves to limbs and amputations secondary to peripheral vascular disease.

1.3. Costs of diabetes

The burden of the disease in terms of costs is enormous. According to the National Service Framework for Diabetes NSFD (2007), more than one in five deaths is caused by diabetes. Some of its costs are:

- Direct cost – to people with diabetes in terms of productivity
- Direct cost – to healthcare system in terms of care and treatment
- Indirect cost to society – impact on family and society as a whole

1.4. Trend in the Prevalence of Diabetes 1987-2004

In order to compare and show the trend in the prevalence of diabetes in the 4 NCD Surveys, the 2004 NCD Survey results for adults aged 30 years and above have been standardized on the National population as at Census Year 1990. The prevalence of diabetes in that age-group increased from 14.3% in 1987 to 19.5% in 1998 (Table 2). The prevalence has decreased slightly to 19.3% in 2004. It appears that over the past 5 – 10 years the prevalence of diabetes has stabilised around 19 %.

Table 2: Prevalence of diabetes from 1987 to 2004 in population aged 30 and above

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14.2</td>
<td>16.3</td>
<td>18.4</td>
<td>18.9</td>
</tr>
<tr>
<td>Female</td>
<td>14.5</td>
<td>17.4</td>
<td>20.6</td>
<td>19.7</td>
</tr>
<tr>
<td>Total</td>
<td>14.3</td>
<td>16.9</td>
<td>19.5</td>
<td>19.3</td>
</tr>
</tbody>
</table>

* latest available figures

Despite the health promotion campaigns since 1987, the rate remains alarmingly high and the prevalence of diabetes in Mauritius will probably continue to stay high for years to come and radical actions are needed urgently in order to take preventive measures and reduce the risk factors. Evidence suggests that a healthy diet and exercise can contribute significantly to this cause (IDF, 2009).
2. THERAPEUTIC LIFESTYLE CHANGE: A ROAD TO PREVENTION

With the growing epidemic of diabetes, it is important that we continue to intensify research in this area in order to prevent or delay the onset of type 2 diabetes. Recent data from several randomized controlled trials have shown that interventions to promote therapeutic lifestyle change (TLC), like healthy food intake, weight reduction, exercise promotion, and ongoing contact with a lifestyle coach positively affected the incidence of type 2 diabetes. Such data stem from large-scale trials like the Da Qing et al (1997) and Tuomilehto et al (2001) studies that lend support to the strength of TLC interventions by showing a respective 42% and 58% reduction in the development of type 2 diabetes.

Data from the Diabetes Prevention Program Research Group (2002) and American Diabetes Association (2004) found that TLC activities (up to 7% weight loss and 150 minutes of physical activity per week) are more effective than standard or pharmacologic therapy in preventing the onset of type 2 diabetes. Evidence from the Diabetes Prevention Program clearly shows that the onset of diabetes can be reduced or prevented, at least in the short term, with TLC. This translates into hope for people who are at risk. However, transferring comprehensive research strategies into the real world setting remains a challenge. Time constraints tend to limit the interaction between the client and the health care professional. Moreover, health care professionals are more inclined to teach and give a brief prescription for behaviour change in an authoritative voice rather than to strategize and partner with the client on how best to begin TLC. The old way of telling the client that diabetes can lead to complications and to simply lose weight and exercise to maintain health is usually an ineffective approach. In fact, this strategy may create resistance, as it undermines the principles of autonomy, collaboration, and empowerment.

3. REVIEW OF HEALTH PROMOTION CAMPAIGNS

3.1. Attitude and behavioural change

People have their own set of beliefs, motives, values for learning. These predispositions heavily influence the lifestyle of individuals. Once people adopt a certain lifestyle, habits settle in. Mauritians may claim to be health conscious, but in reality, a significant proportion do not seem to care much for a balanced diet, proper regular exercises and preventive measures. When they are used to a certain diet and lifestyle, most people strongly resist change, even in dramatic and serious cases. There has been little change in their general attitudes towards diabetes and its harmful effects over the years. There has been an increase in bad eating habits, like fast foods like McDonalds, fried noodles, rice and pastries especially among the young which is worrying. Thus, the promotional campaign to reduce and prevent diabetes in Mauritius has had little impact. Therefore, more radical approaches need to be adopted to deal with this epidemic.

3.2. Understanding the complex nature of ill Health

It is important for those involved in health promotion to give some consideration to the concept of health itself. What exactly do we mean by ‘health’? Strategies for health improvement require an understanding of the values and priorities in terms of working in partnership, involving communities, tackling social exclusion and inequalities. This requires taking a broader view of health and how to create a healthy society. There are many ways in which the concept of health can be understood. The traditional view is predominantly medical orientated, however as individuals, we do not think of our own health simply in terms of the presence or absence of physical symptoms. Our mental, emotional or social health can be equally important to us. Knowledge, attitude and behaviour surveys (KAB) can be useful to establish peoples’ knowledge of diabetes and therefore tailor the health promotion campaigns accordingly.

3.3. Focused Leadership and Commitment

Political commitment from government (e.g. from the Prime Minister, and/or high ranking officers within ministries of health, education and/or sports) is crucial, as it may facilitate physical activity promotion and adoption of a healthy diet on the political agenda, particularly if the commitment is officially announced to the public. Leadership is vital among key individuals involved in the implementation of a strategic plan and may come from individuals within leading agencies (e.g. high ranking officers in ministries) as well as from local programme coordinators in the intervention settings, including community, workplace and schools. Leadership tasks may involve: setting up organizational structures; staff development with relevant skills, with the aim to
establish a trained workforce on physical activity needs; managing communications with and information from other stakeholders; and motivating and rewarding local initiatives for their achievements. A review of urban planning/town planning and environmental policies (national and local level) is important to ensure that walking, cycling and other forms of physical activity are accessible and safe.

### 3.4. Marketing Strategies

In bringing about an evidence-based approach to health care, the products (and to some extent their promotion) include such initiatives as a patient information leaflet, a page on the Internet, a CD-ROM, an audit report, national guidelines, a workshop to learn critical appraisal skills.

According to Winett (1992), in order to bring about adoption, products need to:

- Be able to be tried without great cost or effort. It is important therefore to have them available in easily accessible places, within working hours, at times when they may be most salient, etc.
- Deliver a relative advantage. An advantage in improved patient care is something which is of the essence in both clinical audit and the clinical effectiveness programme, but needs to be shown clearly.
- Be able to be reinvented. Although this will not be a feature of all products, it is in line with the additional success that is sometimes achieved by the local adaptation of guidelines.
- Fit well with prevailing norms. This will involve working with the culture of the target group—what they care about, what their values involve. For example, as nursing begins to put its emphasis more on academic criteria rather than caring ones, the direction of emphasis of a product for them may need to change. For health professionals as a whole, it may be more acceptable to argue only for clinical effectiveness rather than cost effectiveness, as clinical effectiveness fits the clinical culture more comfortably.

### 3.5. Having a clear Brand Identity

This could be established through the use of a common programme name, a logo, a mascot and/or other sorts of branding. This has been a highly successful strategy in other countries and can support the dissemination and adoption of physical activity promotion. It is particularly useful for promotion strategies aimed at awareness raising using mass media (e.g. television, radio, newspaper).

### 3.6. Psychological models of change can help practitioners plan interventions

These models can help practitioners decide appropriate interventions which take account of individuals' attitudes towards health issues and their own health. Psychological models focus on individual decision making but the complexity making of health choices and the ways in which they may be constrained by social factors must also be taken into account.

The Health Belief Model is frequently used to explain people's health actions. Rosenstock (1966) and Becker (1974) argue that people's behaviour is related to their perceptions of the severity of an illness their susceptibility to it the costs and benefits of following a particular course of action. Behaviour may also depend on a trigger, such as a symptom of ill health, the illness of a family member or a friend or a doctor's advice. The premise of the Health Belief Model is that people are basically rational. However, we must also bear in mind that people may be fearful or in denial and may not always take logical decisions about their own health-related behaviour.

### 3.7. Use of Media

In order to reach the general population, mass communication methods, such as TV, radio, newspapers and magazines, billboards and leaflets have been mainly used in Mauritius for health promotion in diabetes. Wide dissemination of the national action plan and the associated programmes and strategies is necessary to reach and promote physical activity and healthy diet in a large proportion of the population. However, it has been difficult to evaluate the cost effectiveness of such approaches in diabetes prevention. It is certainly true that in some cases the use of the mass media may be less effective than face-to-face methods of addressing target groups. Yet radio, television, newspapers and magazines, and billboard posters are important sources of health information. Not everyone can be reached through community approaches and high-profile communication can reach hidden groups in the general population. Tones et al., (1990) argue that the strength of the mass media lies in helping to put issues on the public agenda, in reinforcing local efforts, in raising consciousness about health issues and in
conveying simple information. The limitations of the mass media are that they are less effective in conveying complex information, in teaching skills, in shifting attitudes and beliefs, and in changing behaviour in the absence of other enabling factors. These however, have not been done on a regular basis and the impact of such campaigns has not been measured so far.

Other examples of dissemination that can be used include:

Health exercise ambassadors where famous local athletes can be invited to promote the Healthy Exercise for All Campaign;

Youth Clubs can disseminate physical activity posters and education newsletters (clubs promoting health and well-being among the youth);

Another example of ‘Learn to Live Longer Campaign in Pakistan’ involved a twice-daily television program of 4-5 minutes duration promoting participation in regular physical activity. The program was aired during prime time, on five successive days for a total duration of three months – these types of targeted approaches can be adopted in our context as well to raise awareness of this epidemic.

3.8. Effective Segmentation and Targeting

A national action plan should include large-scale interventions to reach the whole population and enhance physical activity and healthy eating habits at population level. In addition, some interventions (e.g. exercise programmes, educational counselling, cooking classes) may be tailored to specific population groups, such as adults, children, older persons, employees, people with disabilities, women, men, cultural groups, people at risk to develop non-communicable diseases. A useful approach would be to undertake demographic segmentation based on age, education level, income level, occupation, religion, lifestyle and media consumption habits and to tailor the specific information accordingly. It is therefore important to segment the whole market because of these different characteristics and that there will be different ways in reaching these segments. A formal procedure should be used to identify the major segments, which will start by defining the bases of segmenting the market. The main reason to use this variable is that each of these segments identified have different media consumption habits. Thus, there will be different media vehicles used to reach the segments.

An example of tailored exercise programmes for specific population groups include: Exercise activities at workplaces. An initiative in Thailand that is supported by national and local governments, where a number of private sector companies and state enterprises provide their employees with training and time to engage in various types of physical activities.

3.9. Social Support for Health/Public Relations

Getting the right person to promote the product is an essential part of marketing and of health promotion and this will usually be someone who is respected or in authority, e.g. opinion leaders, product champions, Community Leaders, Social, Religious Bodies, Socio-Cultural Organisations, Women Associations.

Social mobilization is a pre-requisite for a successful campaign against Diabetes: all key stakeholders including social institutions, voluntary organizations, religious bodies, parent-teachers association, political leaders, representatives of municipalities, nutritionists, physical instructors, among others should all be involved in the campaign. For instance, in the different social centers of Mauritius, regular meetings can be held with the local people to raise their awareness about the alarming state of diabetes. This should be on an ongoing basis, particularly with the help of more professionals, who can be of great support and assistance to those exposed to the disease. Courses on healthy cooking can also provided in social centres.

3.10. Creating ‘Health Literacy’

The old adage, “prevention is better than cure” is relevant in this context. We should inculcate a culture of a well balanced diet, regular exercise and healthy activities in our young generation. The ministry of education and sports can play a significant role in this context. They can launch massive prevention and sensitization campaign in schools (primary as well as secondary). The main objective of such campaign would be to inculcate in young children the importance of keeping fit and a well balanced diet and hopefully when they will contribute in creating a healthier society and bringing the rate of prevalence of diabetes down in years to come. The success of such campaign will depend heavily on the future action of these young children after being exposed to the campaign. These activities should not be restricted to primary students, but it should follow in the secondary schools with regular talks by nutritionists and specialist health care professionals. A web site, whereby relevant and important information about diabetes could be displayed for the population at large.
3.11. Overweight and Obesity

Table 2: Crude prevalence of obesity and overweight for 1998 and 2004

<table>
<thead>
<tr>
<th></th>
<th>OBESITY</th>
<th>OVERWEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>7.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Female</td>
<td>19.0</td>
<td>14.9</td>
</tr>
<tr>
<td>Both</td>
<td>13.9</td>
<td>11.1</td>
</tr>
</tbody>
</table>

Source: Mauritius NCD survey 2004

Table 2 above shows that the overall prevalence of overweight for 2004 are fairly similar for both males and females with 28% and 28.3%, with an overall figure of 28.2%. There is however a decrease from 1998 figures by 5.1 points for males and 5.2 points for females. As far as obesity is concerned, there was quite a difference between males and females in 2004, with males being 5.9% and females 14.9%. This shows a reduction of 1.4 points for males and 4.9 points for females when compared to the 1998 figures.

3.12. Leisure Physical Activity

Leisure Physical Activity has continued to increase steadily in both males and females during the period 1987 to 2004. The prevalence of adequate moderate or heavy leisure physical activity has increased from 11.8% in 1987 in males to 24.5% in 2004 among males and from 1.4% in 1987 to 9.5% in 2004 among females. These figures are still low, especially in females and they are likely to increase as more and more adults adopt a healthier lifestyle where regular physical activity is an important component. National guidelines or recommendations on physical activity for the general population or specific population groups (e.g. children, adolescents, adults, and older people) are important to educate the population on the frequency, duration, intensity and types of physical activity necessary for health.

3.13. Quality Promotion through Informatics

Computer technology and communication systems can be used to retrieve, exchange, and optimize use of biomedical information and data for making health-care decisions and solving problems. Computer order entry, on-line decision support, and immediate feedback about treatment decisions can provide opportunities for improving health care. With the advent of integrated systems, data repositories, and robust analytic tools, electronic surveillance and related adverse health events can be closely monitored. A data base of individual patient’s records can be created which would be easily accessible allowing health care professionals to make quicker informed decisions.

3.14. Knowledge Attitude and Behaviour (KAB) Surveys

Survey investigation in terms of knowledge, attitude and behaviour (KAB) investigate exposure to, recall and comprehension of campaign messages and self reported behaviour change. KAB surveys have limitations in the extent to which they can monitor changes brought in the social context, since their focus is on the individual. They also present problems of validity and reliability. They are particularly susceptible to the influence of the social desirability response. Most surveys are introduced to respondents by reference to the purpose of the survey, i.e. assessing the public health response to the health problem in question, and so responses reflect those assumed to be desired by those responsible for conducting the surveys.

How reliable are data? The need for triangulation One solution to the problem of bias in the collecting process has been to "triangulate" results, or to cross-validate against other data sources which might provide more objective measures of behavioural change.

3.15. Monitoring and Evaluation

Evaluation and on-going monitoring of the process and outcomes of actions for the promotion of physical activity and healthy diet is necessary in order to examine programme success and to identify target areas for
future plan of action. Research should be capable of revealing not only whether or not a campaign has succeeded, but why. Outcome evaluation may occur through national surveys and monitoring systems by including standardized measures of physical activity. Process evaluation records the implementation and may include documentation of types of programmes and actions, for example: mass media based promotions, dissemination of educational materials to schools/worksites, provision of local physical activity programmes, provision of training sessions. This allows findings to be used to guide future developments. This may be done objectively in terms of the extent to which the campaign was aired (number of TV spots, broadcasting times, frequency and duration, audience figures, numbers of posters and leaflets displayed). Or it may be done subjectively (TV spots seen, time spent watching, time spent reflecting, level of interest). In this sense, process evaluation more closely resembles audit. There is also a need for more sophisticated process evaluation, which sheds light on how and why an intervention succeeds or fails to achieve its goals. While outcome evaluation focuses on the extent to which the goals of a particular programme have been met, process evaluation is needed to provide insights into what factors may help or hinder their achievement.

4. CONCLUSION

The focus of health promotion campaign should be in prevention of diabetes and should start with our youths so that they grow into healthier adults. This would have a multiplier effect as these youngsters are likely to influence their parents, families and friends in adopting a healthy lifestyle.

A holistic approach with combinations of different actions and programmes can be used in different settings to reach and target populations. Possible strategies include: community wide mass media campaigns to raise awareness on the importance and benefits of healthy diet and physical activity in the whole population and disseminate messages promoting physical activity; enhanced access to places for physical activity, i.e. provision of local play facilities for children, building walking trails; transport to work (cycling and walking) strategies for the working population; provide advice or counsel in primary care to reach older persons; formation of social networks that encourage physical activity and healthy diet. Evaluation and on-going monitoring of the process and outcomes of actions for the promotion of physical activity is necessary in order to examine programme success and to identify target areas for future plans of action. A systematic drop in the prevalence of diabetes in the years to come will be key in how effective our new approach to our health promotion campaign has been.

REFERENCES

HSA (2005) Health Statistics Annual, Publication of the statistics unit, Ministry of Health and Quality of Life
IDF Diabetes Atlas (2002). International Diabetes Foundation
Tones, K., Tilford, S. and Robinson, Y. (1990), Health Education, Effectiveness and Efficiency, Chapman
World Health Organization, 2006.A framework to monitor and evaluate the implementation of the WHO Global Strategy on Diet, Physical Activity and Health. Geneva,