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# Impact of a single mass health education intervention on the knowledge of diabetes mellitus among people from a rural population in Vellore, India

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**Abstract :** Prevalence of diabetes is escalating at very abnormal proportions in India. In India, around 40.9 million people are affected by diabetes. This study was done to assess the impact of a single mass educational intervention program on the knowledge of diabetes mellitus among people from a rural village in Vellore. A questionnaire was administered to people who came for health education program. Health education program included a skit lasting for thirty minutes highlighting the symptoms, risk factors, complications, treatment and prevention of diabetes mellitus. The same questionnaire was administered to the same people three days after the program. A score was calculated for each of the domains-symptoms, risk factors, complications, treatment and prevention. The scores were compared before and after health education program using paired t test. Both pre and post health education questionnaires were available for sixty participants. The mean total baseline score was 4.10 (SD 3.36) while the mean total score after health education program was 10.18 (SD 3.2) and the difference was found to be significant statistically (p 0.001). The improvement in scores has been noticed in all the five domains of symptoms, risk factors, complications, treatment and prevention. The study clearly demonstrated the impact of a simple, 30-minute, educational intervention, in the form of mass health education, on the knowledge and awareness about diabetes mellitus among rural population. This kind of mass health educational program could potentially be replicated in other places.
**Keyword :** Health education, diabetes mellitus

**Background**
Prevalence of diabetes is escalating at very abnormal proportions in India. In India, around 40.9 million people are affected by diabetes.[1] Indians develop diabetes at an earlier age and with lower levels of obesity.[2] Over time, diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves. Diabetes and its complications have a significant economic impact on individuals, families, health systems and countries.[3] Simple lifestyle measures have been shown to be effective in preventing or delaying the onset of type 2 diabetes.[4] Early diagnosis can be accomplished through relatively inexpensive blood testing. Primary prevention can be accomplished by promotion of health and reduction of risk factors through the individual and on a community basis.

This study was done to assess the impact of a single mass educational intervention program on the knowledge of diabetes mellitus among people from a rural village in Vellore.

**Methodology**
The Community Health and Development (CHAD) program of the Community Health Department of Christian Medical College (CMC), Vellore has been providing primary health care to a population of over 100,000, spread out in the 82 villages of Kaniyambadi block of Vellore district in Tamil Nadu. The health tier system consists of Part Time Community Health Workers, under the supervision of the Health Aides (HA), whom in turn are supervised by the Community Health Nurses and a doctor. The CHAD used to conduct mass health education programs once in a week in different parts of the block. The members in the health education team are people selected from the community and are trained by a senior health educator. The health education program used to happen in late evenings. The intimation about the program would be given to the villagers by the health aides and community workers few days before the program. A questionnaire was prepared which included 10 closed ended questions regarding symptoms, complications, risk factors, treatment and prevention of diabetes mellitus. The questionnaire was back translated to check for consistency. It was pilot tested before use. It took about ten minutes for a person to fill the questionnaire. For those who were illiterate, the questionnaire was read to them. The questionnaire was administered to sixty five people who came for the health education program. The health education program started with few songs to attract general public followed by a small skit. The skit regarding diabetes was the story of a man with symptoms of diabetes, motivated by a relative to do investigations for diabetes followed by a conversation with a doctor who explained about the lifestyle interventions to prevent diabetes, need for early diagnosis and prevention of complications. The whole skit lasted for 30 minutes. This was followed by summarizing the take home messages. The same questionnaire was administered to them after three days, at their houses. A score was calculated for each of the domains-symptoms, risk factors, complications, treatment and prevention. The maximum score that could be obtained was twenty. The scores were compared before and after health education program using paired t test.

## Results

Both pre and post health education questionnaires were available for sixty participants.The age of the participants varied from 15 to 77 years with a mean age of 39.1 (SD 16.7). Of theparticipants 25 were males and 35 were females. Twenty six of them had studied up to fifth standard.Among them five were known case of diabetes and eight of them had one of their family members being diabetic. The characteristics of the study participants were as shown in Table 1. The pre education score ranged from 0 to 14 and post health education score ranged from 4 to 16. The mean total baseline score was 4.10 (SD 3.36) while the mean total score after health educationprogram was 10.18 (SD 3.2) and the difference was found to be significant statistically (p <0.001). The improvement in scores has been noticed in all the five domains of symptoms, risk factors,complications, treatment and prevention. The difference in scores was a shown in Table 2.

## Discussion

Health education is any combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes. The national program for prevention of Diabetes and other non communicable disease in India is focusing on health promotion and health education advocacy at various settings. Health education program that promote exercise, weight reduction, early diagnosis, screening are some of the key interventions that the program is planning to promote at various levels of heath facilities.[5] The study showed that a simple educational intervention such as a 30-minute mass health education program has significantly changed the way the people perceived the disease. There was a statistically significant change in the level of knowledge in domains such as symptoms, risk factors, treatment, complications and prevention of diabetes mellitus.

The real dramatic change seems to be in knowledge about symptoms, whereas all other domains the change is not as dramatic. There was a lot of emphasis on symptoms of diabetes in the drama and that part was done in a comic and interesting manner. This could be the reason why they remembered the symptoms so well. Also it is clear that the baseline knowledge regarding diabetes was poor in this group of people. This finding was consistent with the findings from other population based studies done in Kolar and Chennai to assess the awareness regarding diabetes among general population.[6,7] Both the studies emphasized the need to do mass awareness campaigns to improve the knowledge regarding diabetes in both rural and urban areas. The current study is limited by a very small sample size. The study looked at the increase in knowledge among people three days after giving a mass health education program. Long term impacts of the program in terms of knowledge or change in behavior has not been studied. It would be useful to know a long term information recall. In chronic life style diseases such as diabetes, knowledge is only one part of behavior change. The actual behavior change is much more complex and does not happen despite repeated efforts both by the patient and the care provider. Several studies have failed to show a correlation between change in knowledge and change in behavior.[8]So it is also important to see change in behavior secondary to change in knowledge. Mass media are only instruments. But what matters is the message they carry and the way the message is delivered. There is no single way to do public education. Each community should develop techniques that meet their own need. The study clearly demonstrated the impact of a simple, 30-minute, educational intervention, in the form of mass health education, on the knowledge and awareness about diabetes mellitus among rural population. This kind of mass health educational program could potentially be replicated in other places.

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**Table 1. Characteristics of the study participants**

| CHARACTERISTICS | CATEGORIES | NUMBERS (%) |
|---|---|---|
| AGE | <=20years 21-40years 41-60years >=60years | 12 (20) 21 (35) 19 (31.6) 8 (13.3) |
| Gender | Male Female | 25 (41.6) 35 (58.3) |
| Education | Nil 1-5th standard 6 -10th standard >10th standard | 8 (13.3) 18 (30) 32 (53.3) 2 (3.3) |
| Type of houseHut | Kutcha Pucca | 3 (5) 3 (5) 54 (90) |

| Occupation | Unemployed Students House wives Unskilled labourers Skilled labourers Cultivate owner Private/semi professional | 2 (3.3) 8 (13.3) 22 (36.6) 20 (33.3) 5 8.3) 1 (1.6) 2 (3.3) |
|---|---|---|

**Table 2. Details of scores obtained- pre and post health education**

| Domains | Maximum possible score | Mean pre edu-cation score | Mean post education score | SE of mean | t statistics | p value |
|---|---|---|---|---|---|---|
| Symptoms | 4 | 0.92 (0.93) | 3.39 (1.49) | 0.20 | -12.38 | <0.001 |
| Risk factors | 4 | 0.85 (0.95) | 1.43 (0.75) | 0.13 | -4.49 | <0.001 |
| Complications | 4 | 0.48 (0.76) | 1.62 (0.97) | 0.14 | -8.01 | <0.001 |
| Treatment | 4 | 1.23 (0.96) | 2.37 (0.82) | 0.14 | -7.59 | <0.001 |
| Prevention | 4 | 0.89 (0.77) | 1.63 (0.67) | 0.12 | -5.83 | <0.001 |
| Total | 20 | 4.10 (3.36) | 10.18(3.22) | 0.55 | -10.34 | <0.001 |