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# Influence of Diabetic Education Programme in improving the Knowledge Attitude and Practice (KAP) of Diabetic Patients

**SHAMYA.K*[1] AND PREMA.L[2]**

[1]Research Scholar and [2]Former Professor HOD of Homescience

[1]Department of Home Science, University of Kerala, Thiruvananthapuram (Kerala) India

Shamnivas, Kolod, Irikkur P.O, Kannur (Dist.), Kerala, India, 670593 E mail shamya1234@gmail.com

[2]Department of Home Science, College of Agriculture, Thiruvananthapuram (Kerala) India

**ABSTRACT-** Positive Knowledge, Attitude and Practice (KAP) are important for diabetic patients. **Aim**: To assess the influence of Diabetic Education Programmes (DEP) in improving the KAP of diabetics. **Methods:** A study on DEP was conducted among 50 diabetic patients in Calicut districts of North Kerala. Prior to DEP, a questionnaire with KAP statements was distributed among all diabetic participants and the knowledge testing questionnaire was again repeated immediately after the programme. Dichotomous scales were used to assess the knowledge and practice level questions and 5-point grading scale was used to assess attitude questions. After one month and third-month, KAP scores were again retested. **Results:** Among the four stages of assessment, retention of knowledge was high immediately after the DEP and it continued after 1 month, however retention level decreased gradually after 3 months. DEP made slight changes in the daily practice of patients, but failed to change the attitude of the patients **Conclusion-**. The retention level of KAP dwindled with time. So continuous education with regular follow-up program is essential to control diabetes.

**Keywords** – Diabetes Education Programme, Knowledge, Attitude, Practice, Dichotomous scales.

## 1.INTRODUCTION

Effective management of diabetes comprises suitable diet adequate exercise, regular monitoring and sufficient medication. Over and above this self-management education on the above aspect is also recognised as the most important component for the management of type 2 diabetes by ADA (2010). Education is likely to be effective if we know the characteristic of the patients in terms of knowledge, their attitude and practices about diabetes. There are numerous studies with special emphasis on epidemiology mainly from South India, Delhi and Mumbai (Madhu et al 2008).

According to Reza et al (2014) knowledge plays a vital role in any future disease development and its early prevention and detection. Positive knowledge, attitude and practice (KAP) are important for DM patients. Elements of KAP are interrelated and dependent on each other. If the level of one element is higher, the other two factors should be affected positively. KAP regarding diabetes vary greatly depending on socio-economic conditions, cultural beliefs and habits.

Moodley et al (2007) reported that knowledge of diabetes can prevent the imminent chronic comorbidities of diabetes, which impact significantly on the quality of life of the diabetic patients. Information can help people to assess their risk of diabetes, motivate them to seek proper treatment and care, and inspire them to take charge of their disease for their lifetime. According to Shrivastava et al (2013) health literacy is an integral part of the diabetes management. Patients with good knowledge of diabetes and its complications seek proper treatment and care and take charge of their health. There is strong evidence that individuals who are educated and diligent with their diabetes self-care achieve better and durable diabetic control (Powers et al 2015 and Rani et al 2008). However, a KAP survey of the general population of rural Bangladesh has found that low levels of knowledge were associated with poor diabetes management and its risk factors (Islam et al 2014). Several studies have reported that knowledge about diabetes is generally poor among diabetic patients (Al Maskari et al 2013).

## 2.METHODOLOGY

An education programme on the nutritional management of Type 2 Mellitus diabetes among 50 sedentary working

diabetics (25 male+25 female) was conducted with the help of residents' associations in Calicut district of North Kerala for assessing the Knowledge Attitude and Practice of the diabetic patient. The DEP divides patients into 3 groups of 12 patients and one group of 14 because small groups favour good communication between patients and the instructor. Prior to DEP a questionnaire with KAP statements in local language concerning knowledge attitude and practice were distributed among all participants. The questionnaire with KAP statements was self-applied questionnaire with 20 questions about different aspects related to diabetes management, patient's attitude towards the disease and general practices followed by them. Reliability of each KAP statements was tested before the Education programme. At the end of the section, each patient was reviewed with a questionnaire with knowledge statements, for assessing the immediate retention of knowledge after the education programme.

A score was given for each KAP question in the questionnaire. Dichotomous scales (positive response as 1 and negative response as 0) were used to assess the knowledge and practice level questions and 5-point grading scale was used to assess attitude questions. After one month and third-month, KAP scores were again retested. The results obtained were tested using the SPSS (Statistical Package for Social Sciences) version 21.0. The statistical methods adopted were One-way ANOVA to compare means of selected variables, Post Hoc analysis to confirm where the differences occurred between groups and chi-square test to point out the association of different variables.

## 3.RESULTS AND DISCUSSIONS

**Figure 1: Distribution of diabetics based on KAP score**

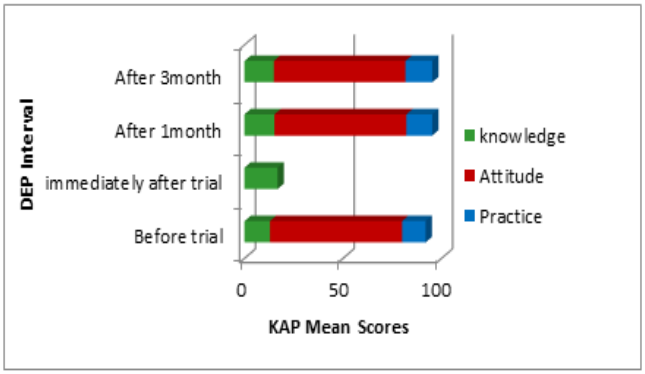


Figure 1 illustrated that the mean score value of the initial assessment before DEP was poor compared to each stage of assessment. This indicated that the basic awareness of the patients regarding their disease condition was poor. The programme improved the knowledge level of the patients and made slight changes in the daily practice also, but failed to change the attitude of the patients. The retention level of knowledge immediately after the DEP were
comparatively high (mean score 16.8) after one-month retention became 15.2 and then 14.9 after three months. The attitude of the patient remains almost the same in all the three stages of assessment (mean score 67). Most of the patients changed their practice after the DEP but maximum retention was observed during the first month (mean score 13.6). It is a popular assumption that good KAP would equate to adequate control of diabetes mellitus. However, it is clear from the study of Hui et al (2012) that a positive relationship exists between the three parameters of KAP, it may not be related to reality. It is possible that these patients had the desire to control diabetes but lacked the will to do so. There may also be lack of motivation, social support or possibly poor compliance to medications due to financial difficulties. Older patients may need frequent follow-ups and closer monitoring along with motivation and counselling stressing the importance of lifestyle modifications and self-management.

**Table 1: Retention level of Knowledge Attitude and Practices**

| ANOVA | | | | | |
|---|---|---|---|---|---|
| *Source* | *SS* | *df* | *MS* | *F* | *p-value* |
| **Knowledge** | 367.7 | 3 | 122.565 | 23.21 | **0.001** |
| **Attitude** | 0.76 | 2 | 0.38 | 0.01 | 0.993 |
| **Practice** | 81.76 | 2 | 40.88 | 4.84 | **0.001** |

The retention of KAP was statistically tested with ANOVA which also supported that Knowledge and Practice had strong statistical significance at 0.05 levels. Since ANOVA revealed a significant difference among the three sample means scores a stepwise multiple comparison procedure called post hoc test was done to identify how the sample means that are significantly different from each other. The result of the analysis is presented in Table 2.

**Table 2: Assessment of retention level using Post Hoc test**

| KNOWLEDGE | | Before DEP | 3 month after DEP | 1 month after DEP | Immediately after DEP |
|---|---|---|---|---|---|
| Assessment Stages | Mean score | 13 | 14.9 | 15.2 | 16.8 |
| Before DEP | 13 | | | | |
| 3 month after DEP | 14.9 | **4.26** | | | |
| 1 month after DEP | 15.2 | **4.79** | 0.52 | | |
| Immediately after DEP | 16.8 | **8.31** | **4.05** | **3.53** | |
| **critical values for experimentwise error rate:** | | | | | |
| | | 0.05 | **2.6** | | |
| | | 0.01 | **3.18** | | |
| **PRACTICE** | | Before DEP | 3 month after DEP | 1 month after DEP | |
| Assessment Stages | Mean score | 11.9 | 13.1 | 13.6 | |
| Before DEP | 11.9 | | | | |
| 3 month after DEP | 13.1 | 2.13 | | | |
| 1 month after DEP | 13.6 | **3.03** | 0.89 | | |
| **Critical values for experiment wise error rate:** | | | | | |
| | | 0.05 | **2.38** | | |
| | | 0.01 | **2.97** | | |

As it was recognized that there existed a strong statistical significance for mean scores of Knowledge and Practice with respect to the different stages of retention level. So it was found an imperative to uncover the most affected retention level under each stage of assessment. The result revealed that compared to the initial stage the knowledge level of the patients, improved much better, but as the time goes on the retention level decreased slowly. maximum influence of education programme continued after the first month only. Among the four stages of assessment, retention of knowledge was high immediately after the DEP. The retention continued after 1 month also but retention level decreased after 3 months. The same thing happened in the case of Practice also. Compared to the initial stage their overall practice improved but the since the error rate is more the 2.97 data was significant at the 1% level.

**Table 3: Association of Attitude and Practice with respect to Knowledge**

| Variables | Scores | n=50 | Knowledge Score | | | P value |
|---|---|---|---|---|---|---|
| | | | 09-13 | 14-16 | >16 | |
| Attitude | 54-62 | No | 10 | 3 | 1 | <0.001 |
| | | % | 71.4% | 21.4% | 7.1% | |
| | 63-70 | No | 8 | 10 | 2 | |
| | | % | 40.0% | 50.0% | 10.0% | |
| | 71-90 | No | 1 | 4 | 11 | |
| | | % | 6.3% | 25.0% | 68.8% | |
| Practice | 7-11.7 | No | 8 | 5 | 6 | 0.438 |
| | | % | 42.1% | 26.3% | 31.6% | |
| | 11.8-13.7 | No | 8 | 5 | 3 | |
| | | % | 50.0% | 31.3% | 18.8% | |
| | 13.8-18 | No | 3 | 7 | 5 | |
| | | % | 20.0% | 46.7% | 33.3% | |

It was clear from the Table 3 that both Knowledge and Attitude were positively associated. 68.8% of the patients with good knowledge score (>16) had good attitude score (70-90) also. At the same time, 71.4 percent of patients with poor Attitude score (54-62) had poor Knowledge score (9-13) revealing that both the variable Knowledge and Attitude were dependent on each other. The result obtained was also statistically significant (<0.001). However, the Knowledge level of the patient and practices were negatively associated.20% of the patients with poor Knowledge level had good practice while 31.6% of the patients with good Knowledge had poor habits of Practice.

It was clear from the table that both Knowledge and Attitude were positively associated. 68.8% of the patients with good Knowledge score (>16) had good Attitude score (70-90) also. At the same time, 71.4 percent of patients with poor Attitude score (54-62) had poor knowledge. Another study by Herath et al (2017) reported that the most notable finding in their study is the gap between Knowledge of diabetes and Attitudes towards diabetes and its management. Even though the majority (>75%) had either moderate or good knowledge it is not reflected in their attitudes as about 88% was found to have a poor attitude towards diabetes.

**Table 4: Association of Practice with respect to Attitude**

| Variables | Scores | n=50 | Attitude Score | | | P value |
|---|---|---|---|---|---|---|
| | | | 54-62 | 63-70 | 71-90 | |
| Practice | 7-11.7 | No | 6 | 7 | 6 | <0.033 |
| | | % | 31.6% | 36.8% | 31.6% | |
| | 11.8-13.7 | No | 6 | 9 | 1 | |
| | | % | 37.5% | 56.3% | 6.3% | |
| | 13.8-18 | No | 2 | 4 | 9 | |
| | | % | 13.3% | 26.7% | 60.0% | |

From the Table 4, it was clear that 60% of the patient with good Attitude score (71-90) had good practice score (13.8-18) but 31.6% of patients with poor Attitude score (54-62) had poor practice score (17-11.7). This indicated that both the variables are positively associated and dependent. So it is necessary to develop a positive attitude towards the diabetes management, which in turn leads to good daily practices simultaneously.

## 4.CONCLUSION

A well-organized DEP succeeded in improving the KAP level of the diabetic patients. But the level of retention decreased gradually after 3 months. The programme improved the knowledge level of the patients and made slight changes in the daily practice also, but failed to change the attitude of the patients.

The overall result highlighted that compared to the initial stage the knowledge level of the patients, improved much better, but as the time goes on the retention level decreased slowly. Among the four stages of assessment, retention of knowledge was high immediately after the DEP and it continued after 1 month and gradually level of retention decreased 3 months after the DEP. The same thing happened in the case of Practice also. However, the knowledge level of the patient and practices were negatively associated. 31.6 % of the patients with good knowledge had poor habits of practice. At the same time, both knowledge and attitude were positively associated. 68.8 % of the patients with good knowledge score had good attitude score also. Similarly, attitude and practice had a positive statistical significance. Therefore, more emphasis should be given to addressing the level of diabetic education with a continuous follow-up program on diabetes to improve their knowledge level, if it continues for a long time it will definitely change the attitude of the patients and eventually, it leads good practices also. So the current study suggests the need for structured educational programs on diabetes and its follow up on a regular basis to assist patients in living a productive life.

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