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ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES IN THE MANAGEMENT OF DIABETES MELLITUS AMONG ELDERLY PEOPLE

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Abstract:-As a person gets older he/she is prone to many diseases. Among them diabetes mellitus is most prevalent. Diabetes is the major threat to the growing elderly population, the existence of this condition markedly increases multi-systemic complications. Hence the study on knowledge, attitude and practices (KAP) in the management of diabetes among elderly people was envisioned.

The study was conducted with an objective to study the KAP in the management of diabetes among elderly people. A total sample of 1200, constituting of 600 men and 600 women, between the age group of 65-76 years were randomly selected from 30 areas of urban Bangalore. A Structured Interview Schedule (SIS) developed by the investigators to study the KAP in the management of diabetes among elderly. The obtained data was tabulated and subjected to statistical analysis by applying percentage analysis, chi-square and 't' test. The results showed moderate knowledge, fair attitude and not so good practice in the management of diabetes among the respondents.

Keywords: Diabetics, Assessment, Elderly, Management.

INTRODUCTION:

Diabetes in the elderly will be the epidemic in this Century. Current data suggests that about 20 percent of people over the age of 65 will develop diabetes at some point in their life. At least half of them are unaware that they have the disease yet they are still susceptible to the complications of the illness. Recently, the diagnostic criteria for diabetes have been changed which means that they are going to detect even more cases of diabetes in older individuals. It is now recommended that every person over the age 45 should have a fasting blood sugar test once every three years to screen for diabetes. A fasting blood sugar test should be performed yearly in people who are at high risk which includes people with hypertension, obesity, high cholesterol, a history of gestational diabetes, or a strong family history of diabetes.

Old age people suffering from diabetes are also likely to be effective with blurred vision, unexplained weight loss, slow healing of wounds, frequent urination and accompanied by thirst. These problems need to be tackled at the earliest. Diabetes in elderly people can be really tough to deal with. It is indeed an added burden in old age. Old people in fact are more prone to suffer from diabetes primarily because of lack of movement and work. Sometimes it becomes difficult to identify the symptoms of diabetes in the old and this makes the treatment even more difficult. Elderly need extra care in diabetes since they run the risk of developing non ketotic hyperosmolar coma sometimes even leading to death. Yet another difficulty is reduction in weight of the elderly, since they cannot be made to undergo hard strenuous exercises so the best way is to go for a walk for 20 minutes every day and keep the diet under check.

The old age people are more prone to developing various complications like neuropathy, nephropathy, vascular diseases and hypertension so greater precautions are needed with regard to the kind of medicines they are made to live on.

According to Franjic, B and Marwick, T. H (2009) the prevalence of diabetes is escalating, and is leading to increased rates of heart failure, myocardial infarction and cardiovascular death. Due to several inter-related biological processes, hypertension is often associated with diabetes, and accelerates these morbid conditions.

Older people clearly are at increased risk of failing to receive proper counseling, diet, and for some, potentially lifesaving medication. Personal preferences regarding interest in complying with guidelines and recommendations may play a role although many elderly have coexisting illnesses that may interfere with their care and also place them at greater risk of unwanted side effects.

The research project was taken up to assess the Knowledge, Attitude and Practices in the management if diabetes in elderly people.

OBJECTIVE

1. To study the existing Knowledge, Attitude and Practices (KAP) in the management of diabetes among elderly people. 2. To assess and compare the KAP in the management of diabetes among elderly men and women. 3. To assess and compare the KAP in the management of diabetes among elderly between the age group of 65-70 years and 71-76 years.

HYPOTHESIS

1. There will be significant differences in the knowledge, attitude and practices in the management of diabetes among elderly men and women.
2. There will be significant differences in the KAP in the management of diabetes among the two age groups of elderly, namely65-70 years and 71-76 years.

Sample

The total sample constituted 1200 elderly men and women diabetics in the two age groups namely 65-70years and 71-76 years thus constituting 300 in each cell with 600 each of men and women and 600 each from two age groups.

Tool

Structured Interview Schedule (SIS) developed by the investigators, on demographic profile and knowledge, attitude and practices (KAP) with regard to diabetes.

Procedure of study

The study involves co-operative action research aimed at a survey or an exploration of knowledge, attitude and practices in the management of diabetes among elderly diabetic people.

As the study focuses on the old age people with diabetes the cross section of the society elderly diabetics belonging to the two age groups namely 65 to 70years and 71-76 years residents of Urban Bangalore were identified. Purposive random sampling was adopted for the study. The investigators visited various mahila mandals, senior citizen sanghas, senior citizens clubs and parks to collect the sample from 30 randomly selected areas of urban Bangalore. The presence or absence of these conditions in them was verified.

Once the respondents were identified, they were contacted, rapport was established and the time was fixed as per their convenience to collect the data. This process was continued till the data was collected from the required sample of 1200. A person to person approach was used during this phase of the study. The SIS on KAP in management of diabetes was administered to the respondents. Both the English and Kannada versions of the SIS were used for data collection according to the requirement.

RESULTS AND DISCUSSION

Educational level of respondents

The respondents were further divided into sub groups based on their educational level. There were five levels of respondents namely, illiterates, those with education below S.S.L.C., Matriculates, Degree/Diploma holders and Professional degree holders. Their numbers and the percentage of the sample are as given in table -1. A chi – square analysis of sample size at different educational levels was made to see the statistical significance of the association between educational level and gender / age in the sample distribution.

Table- 1: Educational Level of Men and Women Respondents in the two age groups

Age Group (years)	Category	Men		Women		Combined		χ2 Value
		N	%	N	%	N	%	
65-70	Illiterate	97	32.3	162	54.0	259	43.2	43.14*
	Below SSLC	50	16.7	35	11.7	85	14.2	
	SSLC	54	18.0	61	20.3	115	19.0	
	Degree/Diploma	81	27.0	37	12.3	118	19.8	
	Professional	18	6.0	5	1.7	23	3.8	
Total		**300**	**100.0**	**300**	**100.0**	**600**	**100.0**	
71-76	Illiterate	41	13.7	83	27.7	124	20.7	39.13*
	Below SSLC	60	20.0	69	23.0	129	21.5	
	SSLC	64	21.3	78	26.0	142	23.7	
	Degree/Diploma	110	36.7	63	21.0	173	28.8	
	Professional	25	8.3	7	2.3	32	5.3	
Total		**300**	**100.0**	**300**	**100.0**	**600**	**100.0**	**71.34***

*Significant at 5% level,

Significant differences were noticed in the distribution of sample at both the age groups with regard to the level of education among men and women. Illiterates were lesser in number among both men and women in the older age group as compared to the younger among the aged. There was not much of a difference in the number of respondents between matriculates and non- matriculates in the two age groups of men and women except that the number of non- matriculate women was considerably less in the younger age group. Professionals were less in all the four groups especially among women. Degree/diploma holders were relatively more among men in the older group. There appears to be an association between gender and educational level of the sample. There were more illiterates and lesser number of graduates and professional degree holders among women as compared to men.

The chi-square value between the two age groups was 71.34 and was statistically significant beyond 5 per cent level. This indicated an association between age and the educational level. There were more illiterates in the younger group, but there were more graduates and professional degree holders in the older group of aged. Women in the older group were better educated than women in the younger group.

Self income

Generally economic independence is treated as a determinant of many outcomes. Hence, the sample distribution was also tested on self income. The presence or absence of self income as reported by the respondents was considered to divide the sample in to two groups. These two groups were compared within the four sub groups of the study.

The number of respondents in the four subgroups in each category is given in table-2a. A chi – square analysis of

sample size with or without self income was made to see the statistical significance of differences in the sample distribution and its association with age and sex.

Table -2a: Number of respondents in the four sub groups based on their self income

Age Group (years)	Self Income	Men		Women		Combined		χ2 Value
		N	%	N	%	N	%	
65-70	Yes	156	52.0	40	13.3	196	32.7	101.96*
	No	144	48.0	260	86.7	404	67.3	
Total		**300**	**100.0**	**300**	**100.0**	**600**	**100.0**	
71-76	Yes	182	60.7	117	39.0	299	49.8	28.17*
	No	118	39.3	183	61.0	301	50.2	
Total		**300**	**100.0**	**300**	**100.0**	**600**	**100.0**	**21.43***

*Significant at 5% level,

As indicated by the significant chi-square values given in table -2a, there exists an association between sex of the respondent and self income. Significantly more number of men than women has reported self income in both the age groups. The chi- square between the two age groups is 21.43 and is significant beyond 5 per cent level. Older men and women than younger men and women have reported self income more often. Thus significantly more number of men and those in the older age group has reported self income.

Family income

Health care and management of disease is to a great extent influenced by the income of the family. Hence along with self income, income of the family was also taken as a demographic variable and the distribution of the sample in the four groups was verified for the presence of bias on this dimension. The income of the respondents varies from below Rs.5000 per month to Rs. 20,000 per month. The range was brought under five categories as given in table-2b.

Table - 2b: Income distribution of men and women respondents in the four sub groups

Age Group (years)	Income (Rs)	Men		Women		Combined		χ^2 Value
		N	%	N	%	N	%	
65-70	<5000	35	11.7	6	2.0	41	6.8	103.49*
	5001-10000	48	16.0	10	3.3	58	9.7	
	10001-15000	41	13.7	13	4.3	54	9.0	
	15001-20000	32	10.6	11	3.7	43	7.2	
	No	144	48.0	260	86.7	404	67.3	
Total		**300**	**100.0**	**300**	**100.0**	**600**	**100.0**	
71-76	<5000	46	15.3	18	6.0	64	10.7	36.85*
	5001-10000	59	19.7	29	9.7	88	14.7	
	10001-15000	48	16.0	44	14.7	92	15.3	
	15001-20000	29	9.7	26	8.6	55	9.2	
	No	118	39.3	183	61.0	301	50.1	
Total		**300**	**100.0**	**300**	**100.0**	**600**	**100.0**	Between two age groups 35.6*

*Significant at 5% level,

The chi-squares reported in table-2b were found to be significant beyond 5 per cent level of statistical significance and indicate an association between income and sex / age.

The income of women in the younger age group is significantly lesser than that of men. This is true in the older age group as well except that the number of men and women reporting a family income of Rs. 10,000 and above do not vary much. An association between age and income is indicated by the significant chi-square between the two age groups. As compared to the younger group, there was more number of older respondents at all levels except in the 'no income' group where the number of younger group is more. In general, the income of the older group and of men is significantly more than that of younger group and of women.

Prevailing Knowledge, Attitude and Practices (KAP) in the Management of Diabetes

Diabetes

Information about the prevailing KAP regarding the management of diabetes was obtained through the Structured Interview Schedule developed by the investigators. Knowledge items included statements on the nature, causes, symptoms, consequences, control and dietary requirements of diabetes. Attitude items contained statements indicating the attitude towards the disease, its effects and practices. Practice items were basically on how people came to know of the disease, the exercises they do, the diet they follow or the regularity of the medical tests they undergo. The responses provided by the respondents yield a score each on K, A, and P. Higher the score better was the knowledge. A higher score on attitude segment indicated a more healthy and positive attitude towards the disease. Similarly, a higher score indicated healthy and useful practices in the management of diabetes. Since the number of items and scores varied in the three segments, the scores obtained by a respondent in each segment were converted into a percent score in view of a common base for comparison.

The mean and standard deviation of each segment for different groups were calculated.
The scores thus obtained on diabetes for the four sub groups and the calculated values of 't' are given in table-3.

Table –3: Mean score and standard deviation on KAP regarding diabetes and the 't' ratios for a comparison of four sub groups

Group	Age (years)	N	Knowledge		Attitude		Practice	
			Mean	SD	Mean	SD	Mean	SD
Men	65-70	300	54.9	28.2	60.7	26.2	34.1	16.7
	71-76	300	61.7	24.3	67.2	22.3	37.7	15.0
't' Value			3.16*		3.27*		2.78*	
Women	65-70	300	73.2	26.1	74.8	25.6	31.2	11.7
	71-76	300	52.4	29.8	56.5	30.3	31.7	18.3
't' Value			9.09*		7.99*		0.40 NS	
Men		600	58.3	26.5	63.9	24.5	35.9	16.0
Women		600	62.8	29.8	65.6	29.5	31.5	15.3
't' Value			2.76*		1.09 NS		4.87*	
65-70 years		600	64.1	28.6	67.7	26.8	32.7	14.5
71-76 years		600	57.1	27.6	61.8	27.1	34.7	17.0
't' Value			4.31*		3.79*		2.19*	

*Significant at 5% Level, NS: Non-Significant

KNOWLEDGE ABOUT DIABETES:

The scores on the knowledge segment of diabetes indicate that the mean scores vary in the sub groups from 73.2 to 52.4 for knowledge items. It indicates moderate to good knowledge among the respondents. The SD of scores varies from 29.8 to 24.3. The standard deviation of scores indicates a wide range of individual differences in the group. The normal range of score for men in the age group 65 – 70 for example, was found to be 54.9 +/- 28.2, that is, from 83.1 to 26.7.

Older men and younger women scored significantly more on the knowledge items than the other groups, that is, younger men and older women among the aged. In general, women scored significantly more than men and younger group more than the older group of aged. The findings of the present study supports the study by Moodley, L., et.al., (2007), where the findings revealed higher knowledge score in the management of diabetes mellitus in the female group than in the male group of adults.

The fact that women are becoming more health conscious is indicated in the higher scores of the younger group of women in the knowledge segment. It is also justified since women play the role of care givers in the family. For older men gaining knowledge about diabetes may be more a necessity.

When an analysis of the nature of responses to different items was made, it was noticed that elderly men and women knew only some of the causes leading to diabetes. Majority knew that inheritance was the cause but had poor knowledge about obesity, stress, physical inactivity and smoking as the causes leading to diabetes. Common symptoms they knew were frequent urination and thirst. Many symptoms like loss of appetite, fatigue, weight loss were mistaken as the signs of ageing. Many elderly reported that they did not know that they had diabetes till they noticed a delay in wound healing; then they went for medical check up and were diagnosed as diabetic. Many elderly had poor knowledge related to complications of diabetes like kidney diseases, stroke, foot diseases and deformities. Many responded that the best method to monitor diabetes is to stop eating sweets and to take medicine regularly but did not mention about taking smaller meals at frequent intervals. Women had less knowledge with regard to life style modifications and the importance of regular exercise compared to men. They had the limited knowledge with regard to foods recommended for diabetes and diabetic meal.

It was noticed in case of men respondents that they knew the risk factors and symptoms of diabetes. Majority of the respondents were not aware of complications of diabetes. Majority of men and women respondents had the attitude that diabetes hampers the social life of a person and they cannot have normal life style.

Attitude towards diabetes:

With regard to attitude towards diabetes, the mean scores of the four sub groups vary from 74.8 to 60.7. The mean scores indicated that the attitude of the groups toward diabetes was fair and healthy. The SD of scores varied from 30.3 to 22.3 and indicated a wide range of individual differences in the groups. Individual differences were found to be more among women in general and among older women in particular. The individual differences were relatively lesser among older men.

Again a more favourable or healthy attitude was shown by older men and younger women among the aged. Here also women and the younger group scored higher than men and the older group. However, the difference in the mean scores of men and women was not statistically significant.

Even as the respondents showed a healthy attitude, many elderly agreed that diabetes is a disease and a person feels very low after knowing that he/she is a diabetic. Many of them disagreed with the statement that diabetics should control eating high calorie foods. Majority of men and women respondents had an attitude that diabetes hampers the social life of a person and one cannot have a normal life style.

Wide individual differences in the attitude towards diabetes may be due to variations in the stage or duration of the disease, financial conditions, and facilities for diet control, exercises etc.

Practices followed to manage diabetes:

The mean scores on practice items vary from 31.7 to 37.7. The mean scores suggest a below average, not so good or poor performance of the group. The SD of scores varies from 11.7 to 18.3. Older group of women differ widely in their practices and these differences were minimum in the younger group of women.

The mean scores on 'practice' differ significantly between the two age groups of men with a higher score noticed in the older group. The two age groups of women showed no significant variations in their scores. Men and women as well as the two age groups in general showed significant differences in their mean scores. Unlike the knowledge and attitude scores, here men and the older group showed significantly healthier practices compared to women and the younger group among the aged.

Right knowledge and a healthy attitude may not transform into actual practice as noticed in this study. A strong motivation emerging from the compulsion of the circumstances and acceptance of the disease, as in the case of men and older group, is necessary to follow healthy habits. Knowing that they were diabetic many elderly men developed the practice of going for a walk or doing yoga as compared to women. Few women practiced doing laughter yoga.

Elderly responded that they sometimes eat sweets after taking medicine. Many of them began to use ragi instead of

rice and some of them responded that sometimes they used sugar substitutes in daily diet.

People with diabetes often feel challenged by their disease and its day-to-day management demands. And these demands are substantial. They must deal with their diabetes all day, every day, making countless decisions in an often futile effort to approximate the non-diabetic metabolic state. Diabetes therapy, such as taking insulin, can substantially affect quality of life either positively, by reducing symptoms of high blood sugar, for instance, or negatively, by increasing symptoms of low blood sugar, for example. The psychosocial toll of living with diabetes is often a heavy one, and this toll can often, in turn, affect self-care behavior and, ultimately, long-term glycemic control, the risk of developing long-term complications and quality of life.

There is now good evidence that psychosocial issues are critical to good diabetes care. Psychosocial factors often determine self-management behaviors, and psychosocial variables (such as depression) are often stronger predictors of medical outcomes such as hospitalization and mortality than are physiologic and metabolic measures.

Reason for Blood Sugar Test for Diabetes

For a question on 'When did you get your blood sugar level tested to know if you are a diabetic?' the frequency of choice of different alternatives given by the four sub groups are as indicated in table- 4.

Table- 4 indicates the frequency of alternative responses selected by the respondents. Accordingly, the order of the reasons given for blood test for diabetes was:

As a regular health check up.
Delayed healing of a wound,
Sudden weight loss,
Feeling very thirsty and
Recent positive high blood sugar of a sibling.

As indicated by the chi-squares, the association between sex of the respondent and age in choosing a given reason was significant for ' a regular health check up', 'sudden weight loss' and 'frequent urination'. In the case of older men and women, they endorsed the reason 'regular health check ups', more often than younger men and women. In case of the remaining two reasons, younger men and older women endorsed these reasons more often than the other groups. The remaining reasons offered as alternatives showed no association with either sex or age of the respondents.

Table - 4. Frequency of the choice of alternatives for the blood sugar test for diabetes in the four sub groups and the chi-square values

Aspects	Men				Women				$\chi 2$ Value
	65-70		71-76		65-70		71-76		
	N	%	N	%	N	%	N	%	
As a Regular health check up	201	67.0	215	71.7	112	37.3	170	56.7	5.03*
Parents were Diabetic	48	16.0	45	15.0	43	14.3	45	15.0	0.14^{NS}
Recent positive high blood of a Siblings	75	25.0	98	32.7	41	13.7	80	26.7	2.67^{NS}
Delayed healing of a wound	95	31.7	111	37.0	66	22.0	103	34.3	1.89^{NS}
Feeling very Thirsty	75	25.0	70	23.3	65	21.7	87	29.0	2.39^{NS}
Sudden weight loss	90	30.0	78	26.0	58	19.3	90	30.0	6.54*
Frequent urination	62	20.7	47	15.7	57	19.0	87	29.0	7.45*
Others	13	4.3	4	1.3	5	1.7	7	2.3	3.62^{NS}

*Significant at 5% level, NS: Non-Significant

One of the reasons that diabetes is under diagnosed in older people is that the classic symptoms of diabetes do not often present themselves in the elderly. In general, older people with diabetes are asymptomatic. If they have symptoms, they tend to be non specific such as fatigue, weakness, impaired concentration, etc. A blood sugar test should be part of the investigation of any older person who has no specific symptoms. Diabetes is clearly a genetic disease but it is also clear that

lifestyle factors make it more or less likely that an older person with a genetic predisposition will develop diabetes.

Source of information

The variations in the frequency of the source of information that helped the patients to know about diabetes among the four groups of respondents was also analyzed for its statistical significance using chi-square as reported in table -5.

The significant chi- square values suggest an association between the source of information and age. All the four sub groups reported more often doctors as the source that provided information about the illness. But the older group of men and women depended more on doctors to a significantly greater extent. Among men, the older group as compared to the younger group also depended more on friends, magazines, family members and news papers. The younger group reported books and relatives as a source of information to a significantly greater extent as compared to older men.

Among women, the older women reported to a significantly greater extent all sources of information except news papers as compared to the younger group. Thus there appears to be a significant association between the age of the respondents and frequency of sources selected to obtain information.

Table -5: Frequency of the source of information about diabetes and hypertension reported by the four sub groups of respondents and the chi-square values

Source of Information	Age Groups (in Years)							
	Men				Women			
	65-70		71-76		65-70		71-76	
	N	%	N	%	N	%	N	%
Doctor	215	71.7	221	73.7	133	44.3	185	61.7
Books	101	33.7	85	28.3	64	21.3	77	25.7
Friends	84	28.0	99	33.0	70	23.3	84	28.0
Magazines	94	31.3	103	34.3	56	18.7	75	25.0
Relatives	86	28.7	78	26.0	72	24.0	75	25.0
Family members	82	27.3	133	44.3	62	20.7	116	38.7
News papers	54	18.0	84	28.0	40	13.3	36	12.0
Others	16	5.3	17	5.7	0	0.0	16	5.3
$\chi 2$ Value	17.21* Between men				22.84* and women = 10.59 NS			

*Significant at 5% level

Women in general have reported these sources less frequently as compared to men. But only in the case of doctors and news papers the frequency of men reporting these sources is more. However, an association between sex of the respondents and source of information was not noticed because of the non significant chi- square value between men and women.

CONCLUSION

The men scores on the knowledge segment of diabetes indicated that the mean scores suggest a moderate to good knowledge among the respondents. The mean scores indicated that the attitude of the groups toward diabetes was fair and healthy. The mean scores on practice suggest a below average, not so good or poor performance of the group. Individual

differences were wide on all the segments especially among older women.

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