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Original Research Article

Telephonic follow-up to assess compliance to advice regarding lifestyle modification and confirmation of diagnosis given during a diabetes screening camp

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ABSTRACT

Background: Compliance to the advice given in the diabetes screening camp will ensure timely diagnosis and lifestyle modification in high risk individuals. The objective of the study was to determine factors associated with follow up telephonic contacts and compliance to advice regarding lifestyle modification and confirmation of diagnosis.
Methods: A prospective cohort study was conducted among persons aged more than 30 years attending a diabetes screening camp in outpatient department of a tertiary care hospital. Follow up telephonic contact to assess compliance was done among those with random blood sugar level >140mg/dl. Fisher's exact test and relative risk with 95% confidence interval were calculated.
Results: Out of the 1798 individuals attending the screening camp, 170 (9.4%) had raised random blood sugar level. Of these, 113 (66%) could be contacted telephonically. Male gender (RR=1.45, 95% CI=1.12-1.89; p=0.002), formal education (RR=1.85, 95% CI=1.20-2.86; p=0.00), gainful employment (RR=1.31, 95% CI=1.002-1.72; p=0.04) and perception of diabetes as serious and fatal disease (RR=1.26, 95% CI=1.02-1.55;p=0.04) were significantly associated with successful follow up contact. Of the 103 eligible individuals followed up for assessment of compliance, 82 (80%), 63 (61%) and 50 (49%) were compliant to advice regarding diet, physical activity and follow up visits for confirmation of diagnosis respectively. None of the independent factors were significantly associated with compliance. Confirmation of diagnosis of diabetes and initiation of antidiabetic treatment was reported by 33 respondents.
Conclusions: A robust and holistic follow up mechanism to ensure better compliance to lifestyle modification and confirmation of diagnosis after a diabetes screening camp is needed.

Keywords: Diabetes screening, Compliance, Follow up contact

INTRODUCTION

The number of people with diabetes in India is currently around 65.1 million and is expected to rise to 109 million by 2035.[1] Nearly 50% to 70% of people with type 2 diabetes have been reported to be asymptomatic and undiagnosed.[2-4] Screening for diabetes not only ensures early diagnosis which prevents complications and improves prognosis but can lead to lifestyle modifications which is known to have net benefits on health.[5-7] Screening also gives an opportunity to provide advice regarding interventions to prevent or delay progression to diabetes in high risk individuals.[8]

The responsibility of following the advice provided during the screening lies with individual persons.

However there are various studies done in different regions that report poor compliance to lifestyle recommendations and loss to follow up of persons suspected to have diabetes.[9-16]

The present study was done to assess the factors that are associated with telephonic follow up and compliance to advice regarding lifestyle modification and confirmation of diagnosis amongst people with raised blood sugar level identified during a diabetes screening camp in tertiary hospital of Delhi, India.

METHODS

Study design

A prospective cohort study using mixed methodology

Setting

As a part of the World Health Day Celebrations, 2016 a diabetes screening camp was organized from 1st to 7th April 2016 in the outpatient department of Vardhman Mahavir Medical College and Safdarjung hospital (SJH), a tertiary care hospital in New Delhi. Individuals (patients, their attendants and hospital staff) could attend the camp in which the screening was done free of cost.

Study population

Persons aged 30 years and more without a known diagnosis of Diabetes Mellitus who volunteered to attend the camp were screened for high blood sugar levels. A cohort of individuals who had a random blood sugar level (RBSL) of more than 140 mg/dl during the diabetes screening were included in the study for telephonic follow up.

Procedures

All individuals who were eligible for the screening were assessed using a questionnaire, anthropometry and investigations for random blood sugar level.

A pretested, structured questionnaire was used to collect data regarding socio-demographics (age, gender, residence, religion, education and occupation), substance abuse, comorbidities and risk factors of diabetes. The telephonic contact number of each participant was noted.

The weight and height of all the cohort members were taken. The weight was measured using digital weighing scale (SECA 874 U digital scale) and height was measured by stadiometer (SECA 213 Stadiometer) and body mass index (BMI) was calculated.

The capillary whole blood obtained from a finger was tested for random blood sugar level using glucometer which used the electrochemical biosensor method of assay. The results were communicated verbally to the participants as well as noted on a referral card which was handed over to them in the camp. The blood sugar tests were done for all participants irrespective of their response to the questionnaire and anthropometry findings.

The cohort selected for the follow up contact was further assessed for their perceived seriousness of diabetes as a disease.

Advice

Individuals who had blood sugar level of more than 140 mg/dL, were given specific advice about lifestyle modification i.e. diet and physical activity. They were also given follow up advice i.e. need for further investigations (fasting blood sugar and post-prandial blood sugar) and to visit a doctor for confirmation of diagnosis and further management. The individual patients were advised to visit Safdarjung hospital the next day morning for confirmation of diagnosis. If they reported it to be inconvenient, they were given the option of visiting any other doctor as per their convenience and were referred to the respective health centres with referral cards.

The dietary advice was given by a dietician and each eligible person was given a diet chart which had relevant dietary modifications mentioned in it. The advice regarding physical activity and follow-up was given by the doctors. They were also counselled regarding the importance to comply with lifestyle modification advice. Individuals whose RBSL was found to be more than 300 mg/dl were referred to the emergency department of the hospital for further management.

Telephonic follow up

A telephonic follow up of the cohort was done to assess their compliance to lifestyle modification and follow up advice .The investigators called up each member of the cohort one month after the camp. At the beginning, the investigators introduced themselves, sought an oral consent and enquired whether the respondents were willing to spare 10 minutes for the telephonic interview.

For the telephonic interview of the consenting participants, a standardized, pre-tested and semi-structured questionnaire was used to collect information regarding compliance to lifestyle modification and follow-up advice by the individual. During the telephonic call the respondents were asked about their random blood sugar reading during the camp and the advice given regarding diet, physical activity and follow up visits.

The investigators also enquired about the details of the dietary modifications, physical activity and follow up visits done by the respondent after the camp.

Wherever required, quantitative data were complemented with qualitative data collected using open ended questions for detailed information about compliance, reasons for non-compliance and self-reported benefits of lifestyle modification. If the respondent was non-compliant to the advice regarding either diet, physical activity and follow up visits they were counselled to be compliant. Any queries about diabetes raised by the respondents during the telephonic communication were also answered by the investigators.

For participants who could not be contacted in the first attempt, the investigators made two additional attempts to contact them telephonically. If all the three attempts failed, the participant was considered to be lost to follow up.

Definitions

RCBG cut off points of 140 mg/dl have been reported to have maximum sensitivity for identification of diabetes.[17] RBSL between 141 mg/dl to 160 mg/dl was categorized as high blood sugar and above >160 mg/dl was categorized as very high blood sugar level as per the criteria used in National Family Health Survey-4, 2015-16.[18] A body mass index of >25 kg/m^2 was classified as obese.[19] Respondents who reported to have made any modifications in diet as per the advice received during the camp were categorized as compliant to dietary advice. Respondents who reported to have begun any physical activity/exercise or who continued to exercise after attending the screening camp were categorized as compliant for advice regarding physical activity. Respondents who reported to have done a repeat laboratory investigation with fasting and postprandial blood sugar levels and consulted a doctor for confirmation of diagnosis and further management were categorized to be compliant for follow up advice. Persons who had not taken any action to confirm diagnosis, or did not consult a doctor after laboratory investigations or reported taking self-medication /traditional medicines/alternative systems of medicine were all considered to be non-compliant.

Ethics

The study protocol was reviewed and approved by the institutional ethics committee. A written informed consent was taken from each participant during the screening camp in which consent was also sought for making a follow up telephonic contact. During the telephonic call, oral consent was taken before proceeding with the interview.

Analysis

The data were entered and analyzed using licensed version of SPSS 21. The statistical analysis was done using Fishers Exact test and calculation of relative risk with 95% confidence interval. A p value less than 0.05 was considered to be statistically significant.

The investigators read the responses to the open ended questions to identify the details of diet modification, exercise and confirmation of diagnosis as well as the reasons for non-compliance. Codes were identified for the common responses which were applied to the responses to identify the themes and the frequency of respondents reporting each key theme was calculated. Exemplary quotations were identified for each theme

RESULTS

A total of 1798 individuals attended the diabetes screening camp, out of which 170 (9.4%) individuals who had RBSL of >140 mg/dl were eligible for follow up contact. Of them 50 (29%) had high random blood sugar level (141 mg/dl to 160 mg/dl) and 120 (71%) had very blood sugar level (>160 mg/dl). A total of 113 (67%) individuals could be contacted with a telephonic call. Out of the 57 individuals who could not be contacted, 11 did not possess a mobile phone. Among the remaining 46, the phone was switched off in 16 cases, there was no response to the telephonic ring in 19 cases, the mobile was with a family member in ten cases and in one case the mobile number noted turned out to be a wrong number. Figure 1 describes the flow chart of the cohort included in the analysis.

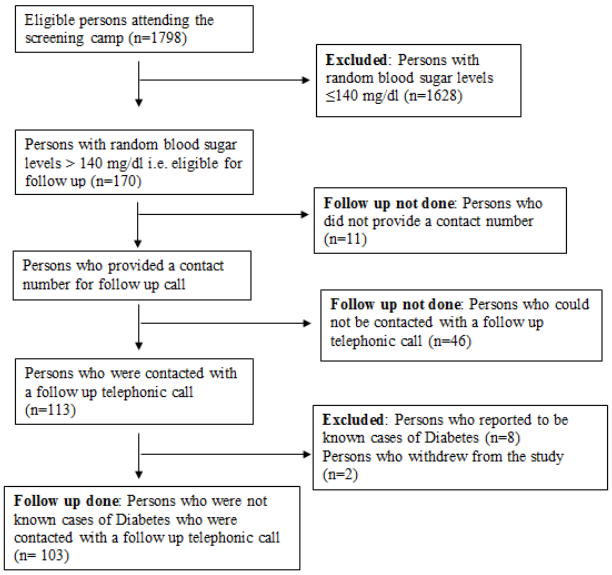

Figure 1: Flow chart of the cohort of individuals attending the diabetes screening camp, eligible for follow up and successful telephonic contact.

Table 1 describes the characteristics of the cohort eligible for follow up contact and the comparison of individuals in whom follow up call was successful with those in whom follow up contact could not be done. Gender, formal education, gainful employment and perception about diabetes were significantly associated with

successful telephonic follow up contacts. Follow up contact was 1.45 times (RR=1.45, 95% CI=1.12-1.89; p=0.002) more likely to be successful in males than females. Follow up contact was 1.85 times (RR=1.85, 95% CI=1.20-2.86; p=0.00) more likely to be successful in those who had formal education and 1.31 times (RR=1.31, 95% CI=1.002-1.72; p=0.04) more likely to be successful in those who were gainfully employed. Individuals who perceived diabetes to be serious and fatal were 1.26 times (RR=1.26, 95% CI=1.02-1.55; p=0.04) more likely to be contacted telephonically.

During telephonic contact eight respondents reported to be known cases of diabetes who had not disclosed their diagnosis during the screening program and two persons withdrew from the study. Hence of the 113 individuals contacted telephonically, 103 (91%) were eligible for inclusion in analysis to identify factors associated with compliance. Of these 103 eligible persons, 82 (80%) were compliant to dietary advice, 63 (61%) were compliant to advice about physical activity and 50 (49%) were compliant to advice regarding confirmation of diagnosis.

Table 2 describes the association of various factors with compliance to advice regarding lifestyle modification and confirmation of diagnosis. None of these factors had a significant association with compliance to advice regarding diet, physical activity and confirmation of diagnosis.

Responses were sought from compliant individuals to open ended questions about lifestyle modifications and attempts for confirmation of diagnosis. Questions regarding reasons for non-compliance were asked to non-compliant individuals.

Compliance to dietary advice

Majority of the 82 compliant respondents mentioned omissions and additions to diet they had made according to the recommendations given during the camp. Only one respondent reported to be strictly adhering to the advice given in the diet chart. The common responses to the question regarding dietary modification were: reduced intake of – 'rice', 'potato', 'sugar', 'sweets', 'oil', 'fruits like banana, grapes, mango', 'tea', 'fried foods', 'refined flour' and increased intake of ' green leafy vegetables', bitter gourd' and 'salads'.

Some of the comments to the question regarding dietary modifications were:

'*I take only one cup of tea in a day, eat light lunch and eat only fruits for dinner.'*

'I have reduced overall intake of food.'

'I skip one meal in the day to reduce the total calorie intake.'

'Earlier I did not eat breakfast in the morning. Now I eat in the morning and then eat small quantities 3 to 4 times in the day. I have reduced rice and rotis (Indian bread).'

'I have reduced the amount of oil used in the family from 5 litres per month to 2.5 litres per month.'

'I have stopped taking tea. Instead I drink juice of bitter gourd and amla in the morning.'

Among the 21 respondents not compliant to advice regarding diet, eight persons reported reasons for non-compliance to dietary advice. A 58 year old female said '*I can't ask my family members to cook specifically for my needs*.' and comorbidity was a barrier was reported by a 43 year old male who said '*I am taking treatment for seizures and cannot make any changes in my diet.'* Two persons had '*forgotten the advice'* and two reported to be *'travelling and hence could not follow dietary advice*. Two respondents said they *'did not feel the need to make any diet modifications.'*

Compliance to advice regarding physical activity

Among the 63 respondents compliant to advice regarding physical activity the most common exercise reported was walking (n=50) while eight said they had taken up running or jogging, nine were doing Yoga, one had joined a gym and one had started cycling.

Of the 40 respondents not compliant to advice regarding physical activity, 20 individuals reported reasons for noncompliance. Of the 11 persons who said it was not convenient, six said they '*were busy with no time to do exercise',* and five reported to be '*out of station or travelling*.' Five respondents felt that as they *'had to do hard physical labour at workplace there was no need to exercise'.* Four mentioned comorbidities (one each reported sciatica, arthritis, asthma and seizures) which acted as barriers to compliance.

Compliance to advice regarding follow up for confirmation of diagnosis

Out of the 50 persons who visited a doctor and had repeated the laboratory tests to confirm the diagnosis of diabetes, 33 (66%) were diagnosed to have diabetes mellitus and 17 (34%) were told they had normal results. Among those diagnosed with Diabetes, 32 persons were put on oral ant diabetic medicines and one was started on insulin. A total of 30 (60%) persons reported to visit government hospitals of which 17 visited Safdarjung hospital for confirmation of diagnosis and further management while 20 (40%) persons consulted private practitioners for confirmation of diagnosis and further management.

Table 1: Characteristics of eligible individuals according to the status of telephonic follow up contact.

Variables	Eligible for follow up at baseline N=170 n (%)	Follow up done N=113 n (%)	Follow up not done* N=57 n (%)	Relative Risk (95% CI)	P value
Age					
≥ 50 years	54 (100)	40 (74)	14 (26)	1.18 (0.95-1.45)	0.17
31 to 49 years	116 (100)	73 (63)	43 (37)		
Gender					
Male	108 (100)	81 (75)	27 (25)	1.45 (1.12-1.89)	0.002
Female	62 (100)	32 (52)	30 (48)		
Formal education					
Yes	137 (100)	100 (73)	37 (27)	1.85 (1.20-2.86)	0.00
No	33 (100)	13 (39)	20 (61)		
Gainfully Employed					
Yes	117 (100)	84 (72)	33 (28)	1.31 (1.002-1.72)	0.04
No	53 (100)	29 (55)	24 (45)		
Residence					
Urban	140 (100)	93 (66)	47 (34)	0.99 (0.75-1.32)	1
Rural	30 (100)	20 (67)	10 (33)		
Residence					
Outside Delhi	23 (100)	17 (74)	6 (26)	1.13 (0.86-1.48)	0.48
Delhi	147 (100)	96 (65)	51 (35)		
Alcohol					
Yes	28 (100)	19 (68)	9 (32)	1.02 (0.77-1.36)	1
No	142 (100)	94 (66)	48 (34)		
Tobacco					
Yes	20 (100)	16 (80)	4 (20)	1.24 (0.96-1.59)	0.21
No	150 (100)	97 (65)	53 (35)		
Smoking					
Yes	21 (100)	14 (67)	7 (33)	1.003 (0.73-1.39)	1
No	149 (100)	99 (66)	50 (34)		
Comorbidity					
Yes	111 (100)	72 (65)	39 (35)	0.93 (0.75-1.16)	0.61
No	59 (100)	41 (69)	18 (31)		
Symptoms					
Yes	20 (100)	15 (75)	5 (25)	1.15 (0.87-1.52)	0.46
No	150 (100)	98 (65)	52 (35)		

Family history of Diabetes					
Yes	105 (100)	68 (65)	37 (35)	0.93 (0.75-1.16)	0.62
No	65 (100)	45 (69)	20 (31)		
Obesity					
Yes	108 (100)	77 (71)	31 (29)	1.23 (0.96-1.57)	0.09
No	62 (100)	36 (58)	26 (42)		
Random Blood Sugar level					
>160	120 (100)	80 (67)	40 (33)	1.01 (0.79-1.28)	1
141-160	50 (100)	33 (66)	17 (34)		
Perceived diabetes to be serious and fatal					
Yes	73 (100)	55 (75)	18 (25)	1.26 (1.02-1.55)	0.04
No	97 (100)	58 (60)	39 (40)		

*Follow up could not done because participants did not provided contact number (n=11) or could not be contacted with three telephonic calls (n=46).

Table 2: Factors associated with compliance to advice regarding diet, exercise and follow up for confirmation of diagnosis.

Variables	Compliance to Dietary advice				Compliance to advice regarding physical activity				Compliance to advice of follow up for confirmation of diagnosis			
	Yes N=82	No N=21	p	RR (95%CI)	Yes N=63	No N=40	p	RR (95%CI)	Yes N=50	No N=53	p	RR (95%CI)
Age n (%)												
≥ 50 years	23 (72)	9 (28)	0.2	0.86 (0.68-1.10)	20 (63)	12 (37)	1.00	1.03 (0.74-1.43)	14 (44)	18 (56)	0.53	0.86 (0.55-1.36)
31 to 49 years	59 (83)	12 (17)			43 (61)	28 (39)			36 (51)	35 (49)		
Gender n (%)												
Male	61 (84)	12 (16)	0.18	1.19 (0.92-1.54)	45 (62)	28 (38)	1	1.03 (0.73-1.45)	39 (53)	34 (47)	0.13	1.46 (0.87-2.44)
Female	21 (70)	9 (30)			18 (60)	12 (40)			11 (37)	19 (63)		
Formal education n (%)												
Yes	74 (80)	18 (20)	0.69	1.11 (0.76-1.61)	57 (62)	35 (38)	0.75	1.14 (0.65-1.99)	46 (50)	46 (50)	0.53	1.37 (0.61-3.08)
No	8 (73)	3 (27)			6 (55)	5 (45)			4 (36)	7 (64)		
Gainfully employed n (%)												
Yes	64 (82)	14 (18)	0.39	1.14 (0.87-1.49)	45 (58)	33 (42)	0.24	0.80 (0.58-1.09)	38 (49)	40 (51)	1	1.02 (0.64-1.62)
No	18 (72)	7 (28)			18 (72)	7 (28)			12 (48)	13 (52)		
Residence n (%)												
Rural	14 (78)	4 (22)	0.76	0.97 (0.74-1.27)	11 (61)	7 (39)	1	0.99 (0.67-1.49)	12 (67)	6 (33)	0.12	1.49 (0.99-2.23)
Urban	68 (80)	17 (20)			52 (61)	33 (39)			38 (45)	47 (55)		
Place of Residence n (%)												
Outside Delhi	10 (71)	4 (29)	0.48	0.88 (0.62-1.25)	10 (71)	4 (29)	0.56	1.19 (0.83-1.74)	10 (71)	4 (29)	0.04	1.59 (1.06-2.38)
Delhi	72 (81)	17 (19)			53 (60)	36 (40)			35 (39)	54 (61)		
Alcohol n (%)												

Yes	14 (87)	29 (13)	0.51	1.12 (0.90-1.39)	10 (62)	6 (38)	1	1.03 (0.68-1.55)	5 (31)	11 (69)	0.18	0.60 (0.28-1.28)
No	68 (78)	19 (22)			53 (61)	34 (39)			45 (52)	42 (48)		
Tobacco n (%)												
Yes	12 (86)	2 (14)	0.73	1.09 (0.86-1.38)	9 (64)	5 (36)	1	1.06 (0.69-1.62)	7 (50)	7 (50)	1.00	1.04 (0.59-1.82)
No	70 (79)	19 (21)			54 (61)	35 (39)			43 (48)	46 (52)		
Smoking n (%)												
Yes	13 (93)	1 (7)	0.29	1.19 (0.99-1.44)	8 (57)	6 (43)	0.77	0.92 (0.57-1.49)	4 (29)	10 (71)	0.15	0.55 (0.24-1.29)
No	69 (77)	20 (23)			55 (62)	34 (38)			46 (52)	43 (48)		
Comorbidity n (%)												
Yes	30 (77)	9 (23)	0.62	0.95 (0.77-1.17)	22 (56)	17 (44)	0.53	0.88 (0.63-1.23)	19 (49)	20 (51)	1	1.01 (0.67-1.51)
No	52 (81)	12 (19)			41 (64)	23 (36)			31 (48)	33 (52)		
Symptoms n (%)												
Yes	71 (80)	18 (20)	1	1.01 (0.76-1.36)	53 (60)	36 (40)	0.56	0.83 (0.57-1.21)	43 (48)	46 (52)	1.00	0.97 (0.55-1.70)
No	11 (79)	3 (21)			10 (71)	4 (29)			7 (50)	7 (50)		
Family history of Diabetes n (%)												
Yes	33 (79)	9 (21)	1	0.98 (0.8-1.19)	23 (55)	19 (45)	0.31	0.83 (0.60-1.16)	18 (43)	24 (57)	0.42	0.82 (0.53-1.25)
No	49 (80)	12 (20)			40 (66)	21 (34)			32 (53)	29 (47)		
Obesity n (%)												
Yes	59 (82)	13 (18)	0.43	1.10 (0.87-1.39)	44 (61)	28 (39)	1	0.99 (0.71-1.39)	36 (50)	36 (50)	0.67	1.11 (0.70-1.74)
No	23 (74)	8 (26)			19 (61)	42 (39)			14 (45)	17 (55)		
Random Blood Sugar level n (%)												
>160 mg/dl	61 (82)	13 (18)	0.28	1.14 (0.89-1.46)	48 (65)	26 (35)	0.26	1.25 (0.85-1.85)	37 (50)	37 (50)	0.67	1.11 (0.70-1.77)
141-160 mg/dl	21 (72)	8 (28)			15 (52)	14 (48)			13 (45)	16 (55)		
Perceived diabetes to be serious and fatal n (%)												
Yes	38 (79)	10 (21)	1	0.99 (0.81-1.20)	33 (69)	15 (31)	1	1.02 (0.78-1.33)	20 (42)	28 (58)	0.24	0.76 (0.51-1.15)
No	44 (80)	11 (20)			37 (67)	18 (33)			30 (54)	25 (46)		

Out of the 53 respondents who were noncompliant to advice regarding follow up for confirmation of diagnosis, 37 described the details or reasons of poor compliance. A majority i.e. 26 said they did not get time to get the confirmatory tests done and three respondents had done the confirmatory tests but not visited the doctor. Two respondents felt that there was no need to repeat the test as they did not have any symptoms. Three were taking medication/ fruit juices without consulting a doctor while one respondent did not remember to get the follow up investigations done. Two respondents had visited health centres to enquire about laboratory tests but did not return for getting the confirmatory tests.

DISCUSSION

In this study 170 (9.4%) of the out of 1798 screening camp attendees had raised random blood sugar level with 50 (2.7%) having high i.e. >140 mg/dl and 120 (6.7%) having very high i.e. >160 mg/dl random blood sugar levels. Studies conducted in India have reported a raised blood sugar level in 7% to 19% of the people screened for prediabetes and diabetes.[20-23] The prevalence of raised blood sugar level depends on the age group of people screened, laboratory tests used for screening and cut offs of random blood sugar level considered.

Of the 170 individuals eligible for follow up contact at baseline, 67% could be contacted telephonically. Confirmation of the telephone number reported during the camp by cross checking it with a test call and noting alternative telephone numbers can improve the coverage of follow up contacts. Inability to follow up contact was significantly associated with female gender, no formal education, unemployment and not perceiving diabetes as serious and fatal. Telephonic follow up may not be suitable and other methods of follow up should be put in place for them. Follow up and compliance can be improved by setting up a referral chain involving field level workers, local health centres and private practitioners.

In this study, 80% of the individuals contacted had made some modification to their diet based on the advice given during the camp. Only one reported complete adherence to recommendations mentioned in the diet chart provided during the camp. Studies have reported compliance ranging from 12% to 63% for dietary advice amongst diabetic patients.[16,17,24-26] Majority of the respondents in our study had made minor omissions or additions in their diet. In our study compliance was defined as any modification in diet as per the advice provided during the camp. In majority of the other studies, the definition of compliance to dietary advice was more stringent and hence they reported lower proportions of adherence rates.

In this study, 61% of the individuals contacted were compliant to advice regarding physical activity. Other studies have reported a compliance ranging for 48% to 75% for exercise among diabetic patients.[17,24-26] The commonest physical activity taken up by the respondents was walking. This is an option which can be easily practiced as it does not need special equipment or resources.

Only 49% of the eligible persons who were contacted had tried to confirm their diagnosis with laboratory tests and consultation with a physician. In a study the compliance to advice for definitive tests for the diagnosis of diabetes was reported to be 30%.[10] In another study, 53% of those who did not receive mobile reminders returned for definitive tests. In this same study 86% of the outpatients who received mobile reminders returned for definitive tests.[27] This problem can also be overcome by using HbA1c for diagnosis of diabetes, but certain biochemical and clinical factors, lack of laboratory standardization of method and the cost of testing act as a limitation for using it in the Indian perspective.[28,29]

Out of the 50 individuals with raised blood sugar during the screening camp who visited doctors for confirmatory tests and further treatment, diagnosis of diabetes was confirmed in 33 individuals. There were no significant differences in the socio-demographic characteristics of persons who were compliant and those were non-compliant to this advice. Hence it is likely that an equal number of cases of diabetes may have been missed due to poor compliance to follow-up advice for confirmation of diagnosis. This reiterates the need of well-defined mechanisms to confirm the diagnosis in the high risk individuals identified in a screening camp.

Studies have reported a significant association of compliance to lifestyle modification with socio-demographic factors like age, gender, education, type of family, socioeconomic status and family history of diabetes among diabetic patients. But in our study none of the variables studied showed any significant association with compliance to the advice given during the screening camp. This indicates that it would be difficult to identify individuals at high risk of non-compliance during the screening camp. The diabetes screening camp provides a single point of interaction between the health service providers and the community. There is a need to identify effective channels of follow up contacts to ensure better compliance. A more holistic approach that includes intensive efforts to modify the behaviour of individuals with diabetes together with changes in the larger environmental systems that affect behaviours have been recommended to improve adherence.[30] Telephonic reminders and counselling have been reported to increase the compliance to lifestyle modifications and medication in diabetic patients.[27,31-35] However in this study only two thirds of the eligible individuals could be contacted for follow up contact and some groups were more likely to be missed during the follow up call. This could be a major limitation of a strategy using telephonic follow up.

In this study there were significant differences between those who could and could not be followed up with a telephonic call and hence the study findings cannot be generalized to all those with raised random blood sugar levels. The study was conducted in a real life situation and one month follow up was considered to be sufficient for putting into practice the advice given during the camp. The telephonic calls not only assessed the compliance but also provided reminders to comply with advice given during the screening.

Follow up telephonic calls were successful in 67% of the eligible persons and certain groups were more likely to be missed during follow up contact. Of the respondents who could be contacted 80%, 61% and 49% reported compliance to advice regarding diet, physical activity and follow up visits for confirmation of diagnosis and further management respectively. There is a need to ensure a more robust mechanism of follow up to ensure better compliance to lifestyle modification and confirmation of diagnosis after a diabetes screening camp.

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