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Gender-related Difference in Socioeconomic and Behavioral Factor in Relation to BP and BMI of Type 2 Diabetic Workers from Match Factories and Fireworks in Sivakasi, Tamil Nadu

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ABSTRACT

Objective: The prevalence of diabetes has been steadily increasing in workers of Match factories and Fireworks in Sivakasi area. We investigated the difference between male and female diabetic patients in terms of impact of socioeconomic, behavioral and other risk factors like blood pressure (BP) and body mass index (BMI). **Methods:** Total 112 persons (64 male and 48 female) with type 2 diabetes were selected for this study, from various hospitals situated in Sivakasi area. Socioeconomic status (SES) and other behavioral factors were ascertained by physical examination and interview. **Result:** There was significant difference between male and female diabetics only in certain factors. SES was found significant and inversely related to physical activity, marital status, food habit, duration and systolic blood pressure (SBP) in female diabetics. In male, these association were weaker or absent, when education level was considered. But in income level, significant differences were found in SBP and detected age. Statistical significance was found between behavioral and other risk factors in both male and female diabetics. **Conclusion:** Physical inactivity leads to high BMI and increased SBP. Due to lack of knowledge, these diabetic patients did not avail any type of medical attention for treating diabetes till they got other complications due to untreated diabetes.

Keywords: Prevalence of diabetes, blood pressure, body mass index, socioeconomic status, physical inactivity, smoking, alcohol intake

Diabetes prevalence is increasing in all population groups in India, but this increase seems to be greater in lower socioeconomic level people. The prevalence of type 2 diabetes has been reported more in fireworks and match factory workers in Sivakasi area. Socioeconomic status (SES) which plays an important role in healthcare and disease prevention, is a complex indicator of health services accessibility, knowledge of health promotion, willingness to seek treatment and lifestyle behavior (Mei Tang 2003).

Educational attainments and income adequacy are important indicators of SES. Low SES tends to be associated with a high prevalence of diabetes in developed countries (Evans et al 2000, Robbins et al 2001, Connolly et al 2000). Obesity, physical inactivity, smoking and alcohol intake are implicated in the development of type 2 diabetes and are also associated with low socioeconomic position (Emilie et al 2004).

Research suggests an association between low SES and high blood pressure (BP), although this association is not consistent. A study on smoking, alcohol consumption and body mass index (BMI) reveals that the lifestyle increases the risk of high BP. And it is more common among people with low SES (Mathews et al 1997, Lynch et al 1997, Porton et al 1999, Dyer et al 1999). Diagnostic and treatment services for high BP may be more accessible to people with high SES (Bunker et al 1995, Hoddard et al 1997).

The health impact of SES and behavioral factors may not be the same in male and female. Only a few studies have assessed sex difference in the relationship between SES and diabetes. The pathway by which SES may differently affect the development of type 2 diabetes in male and female is unclear. The impact of behavioral factors like BMI, physical inactivity, smoking, alcohol consumption and family history of diabetes are closely linked with insulin resistance. But the variation of BP

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in SES and behavioral factors has rarely been studied. So, the aim of the study was to assess the sex-specific association of SES, behavioral factor and the difference in BP and BMI with diagnosed type 2 diabetic workers from match factories and fireworks in Sivakasi area.

METHOD

Area

This study was carried out on workers working in match factories and fireworks in Sivakasi area. Sivakasi is situated in Virudhunagar district, Tamil Nadu state, India. This place is very dry and is ideally suited for the manufacturing of fireworks, printed materials, paper and the match factories. About 3,500 match factories are situated in and around Sivakasi area. Around 30,000 persons are directly employed in these factories.

Participants

For this present study, 112 individuals (64 male and 48 female) were enrolled from various hospitals situated in Sivakasi area. The participants were interviewed and completed questionnaires on SES and behavioral characters were collected.

Socioeconomic Variables

Information on educational attainment was divided into primary (Class 1-5), secondary (Class 6-10) and higher (>10th class) education and income was divided in low (< ₹ 3,000), medium (₹ 3,000 to ₹ 5,000) and higher level (> ₹ 5,000).

Behavioral Variables

Body weight was measured in light clothing in kg and height was measured in centimeters. BMI was calculated by weight in kg divided by square of height in meters. BP was measured in a sitting position for 2 times at the right arm after 15 minutes rest using sphygmomanometer by a well-trained nurse. All subjects were interviewed and asked about their physical activity. It was divided into 'active' and 'inactive'. Alcohol drinking habit was categorized as 'alcoholic' and 'nonalcoholic'. Cigarette smoking habit was divided into 'smokers' and 'nonsmokers'. Their family history about diabetes was analyzed and grouped into FH+ and FH-. Their age, diabetes detected age and duration were also asked during interview.

Laboratory Measurement

Plasma glucose was measured using an enzymatic method by using ready made kits manufactured by Prison Diagnostic Pvt. Ltd., Mumbai.

Table 1. Socioeconomic, Behavioral and Other Risk Factors Among Males and Females

Factor	Male	Female	P value
Age (years)			
Mean	51.13	48.77	0.23
SD	10.17	10.10	
Diabetes detected age (years)			
Mean	47.48	44.88	0.17
SD	9.62	9.91	
Duration (years)			
Mean	3.67	3.92	0.62
SD	2.37	2.67	
SBP (mmHg)			
Mean	132.53	131.29	0.58
SD	12.70	10.82	
DBP (mmHg)			
Mean	80.03	79.23	0.57
SD	8.09	6.84	
Plasma glucose (mg/dL)			
Mean	170.02	172.83	0.72
SD	39.78	42.61	
BMI (kg/m²)			
Mean	26.59	25.38	0.0086
SD	1.99	2.60	
Marital status			
Married (%)	89.06	81.25	0.24
Single/Widow (%)	10.94	18.75	
Food habit			
NV (%)	81.25	70.83	0.196
Veg (%)	18.75	29.17	
Physically			
Inactive (%)	31.25	43.75	0.174
Active (%)	68.75	56.25	
Smoking habit			
Smoker (%)	43.75	0	
Nonsmoker (%)	56.25	100	0.000
Alcohol intake			
Alcoholic (%)	45.31	0	
Nonalcoholic (%)	54.69	100	0.000
Family history of diabetes			
FH+ (%)	76.56	70.83	
FH- (%)	23.44	29.17	0.49
Education			
Primary (%)	25.00	60.42	0.0008
Secondary (%)	56.25	29.17	
Higher (%)	18.75	10.42	
Income			
Low (%)	28.13	54.17	0.02
Medium (%)	37.50	25.00	
High (%)	34.37	20.83	

FH+ = Family history of diabetes present; FH- = Family history of diabetes absent; NV = Nonvegetarian; SBP = Systolic blood pressure; DBP = Diastolic blood pressure.

Statistical Analysis

Analysis was carried out separately for males and females using Systat 12 (2007) statistical software. Descriptive analyses were obtained for all variables and differences between males and females were assessed using '*t*' test, X^2 tests and ANOVA. Sex differences in SES indicators were evaluated using linear or logistic regression models including original SES variables. Means (standard deviation [SD]) for normal distribution and means for log normal distributed continuous variables or proportions for categorical variables were calculated among the SES groups.

RESULT

Socioeconomical, behavioral and other risk factors among male and female participants are shown in Table 1. Systolic BP (SBP), diastolic BP (DBP) and BMI were higher and blood sugar was lower among males than females. Physical inactivity was more in female compared to males. Smoking and alcohol intake was

Table 2a. The Distribution of Risk Factor of Type 2 Diabetes by SES in Men

Factor	Education				Income			P value
	Primary	Secondary	Higher	P value	Low	Medium	High	
Marital status								
Married (%)	75.00	94.44	91.67	0.11	83.33	83.33	100	0.127
Single (%)	25.00	5.55	8.33		16.67	16.67	--	
Food habit								
NV (%)	93.75	75.00	83.33	0.27	72.22	83.33	86.36	0.49
Veg (%)	6.25	25.00	16.67		27.78	16.67	13.64	
Physically								
Active (%)	62.50	66.67	83.33	0.46	16.67	79.17	100	0.000
Inactive (%)	37.50	33.33	16.67		83.33	20.83	--	
Smoking habit								
Smoker (%)	43.75	44.44	41.67	0.98	38.89	45.83	45.45	0.88
Nonsmoker (%)	56.25	55.56	58.33		61.11	54.17	54.55	
Alcohol intake								
Alcoholic (%)	37.50	47.22	50.00	0.76	38.89	45.83	50.00	0.77
Nonalcoholic (%)	62.50	52.78	50.00		61.11	54.17	50.00	
Family history of diabetes								
FH+ (%)	6.25	30.56	25.00	0.16	27.78	16.67	27.27	0.61
FH- (%)	93.75	69.44	75.00		72.22	83.33	72.73	
SBP (mmHg)								
Mean	137.00	130.39	133.00	NS	139.67	133.58	125.55	**
SD	13.06	13.19	9.67		11.19	11.72	11.66	
DBP (mmHg)								
Mean	81.75	78.94	81.00	NS	83.11	81.00	76.45	**
SD	9.18	7.61	8.16		7.36	8.89	6.59	
Plasma glucose (mg/dL)								
Mean	166.94	174.97	159.25	NS	167.61	173.33	168.36	NS
SD	48.99	35.79	38.66		33.39	42.59	42.88	
BMI (kg/m²)								
Mean	26.94	26.43	26.61	NS	27.70	26.73	25.23	NS
SD	1.59	2.06	2.34		2.24	1.73	1.52	
Detected age (years)								
Mean	48.94	46.44	48.67	NS	54.11	46.00	43.68	**
SD	9.46	9.67	10.11		9.37	8.80	8.15	
Duration (years)								
Mean	3.56	3.67	3.83	NS	4.39	3.63	3.14	NS
SD	2.34	2.53	2.08		2.64	2.64	1.69	

NS = No significance; **Significance $p < 0.01$.

found only in males. Nonvegetarians were more in males (81.25%) compared to females (70.8%). Family history of diabetes was seen more in males than females. Significant difference was found in income (p = 0.02) and educational status (p = 0.0008) between male and female subjects. The age at which the diabetes detected was high in males (47 years) and low in females (44 years).

The distributions of various risk factors by SES are shown in Table 2a and 2b. In patients with secondary education level, more male (94.44%) members were found married than female (92.86%). In male diabetics with primary education level number of singles or widows was high. But for female diabetics number of single or widows was high in higher education level. There was significant difference in education level and marital status among female diabetics (p = 0.03).

Most of the male nonvegetarians were found in primary education group. But female nonvegetarians were more in secondary education group. While comparing income level, there was no significant difference noticed in male food habits. But in females, there was a significant difference (p = 0.06). Physical inactivity was

Table 2b. The Distribution of Risk Factor of Type 2 Diabetes by SES in Women

Factor	Primary	Secondary	Higher	P value	Low	Medium	High	P value
Marital status								
Married (%)	82.76	92.86	40.00	0.03	76.92	83.33	90.00	0.65
Single (%)	17.24	7.14	60.00		23.08	16.67	10.00	
Food habit								
NV (%)	68.97	78.57	60.00	0.69	84.62	58.33	50.00	0.067
Veg (%)	31.03	21.43	40.00		15.38	41.67	50.00	
Physically								
Active (%)	37.93	78.57	100.00	0.004	30.46	75.00	80.00	0.025
Inactive (%)	62.07	21.43	--		61.54	25.00	20.00	
Smoking habit								
Smoker (%)	0	0	0	0.0001	0	0	0	0.008
Nonsmoker (%)	100	100	100		100	100	100	
Alcohol intake								
Alcoholic (%)	0	0	0	0.0001	0	0	0	0.008
Nonalcoholic (%)	100	100	100		100	100	100	
Family history								
FH+ (%)	20.69	42.86	40.00	0.28	26.92	33.33	30.00	0.92
FH- (%)	79.31	57.14	60.00		73.08	66.67	70.00	
SBP (mmHg)								
Mean	134.41	128.29	121.60	**	133.92	129.33	126.80	NS
SD	9.01	12.19	10.14		11.01	8.06	12.15	
DBP (mmHg)								
Mean	80.45	78.29	74.80	**	80.27	76.33	80.00	NS
SD	7.16	6.27	5.02		7.41	6.14	5.58	
Plasma glucose (mg/dL)								
Mean	170.79	177.36	172.00	NS	178.00	161.08	173.50	NS
SD	40.89	51.08	32.33		38.22	49.62	46.38	
BMI (kg/m²)								
Mean	26.00	24.71	23.64	NS	25.68	25.39	24.58	NS
SD	2.78	2.05	1.92		2.99	2.26	1.84	
Detected age (years)								
Mean	45.97	43.86	41.40	NS	46.31	42.92	43.5	NS
SD	10.38	8.58	11.46		11.61	9.13	7.15	
Duration (years)								
Mean	4.28	3.79	2.20	***	3.96	3.83	3.90	NS
SD	3.17	1.58	0.84		3.21	1.69	2.28	

NS = No significance; **Significance $p < 0.01$; ***$p < 0.001$.

Table 3a. The Relationship Between Behavioral and Other Risk Factors in Male

Factor	Food habit			Smoker			Alcohol			Physically		P value
	Nonveg	Veg	P value	Yes	No	P value	Yes	No	P value	Inactive	Active	
Family history												
FH+ (%)	21.15	33.33	0.37	25.00	22.22	0.79	31.03	17.14	0.19	70.00	79.55	0.40
FH- (%)	78.85	66.67		75.00	77.78		68.97	82.86		30.00	20.45	
Marital status												
Married (%)	90.38	83.33	0.48	96.43	83.33	0.09	100.0	80.00	0.01	85.00	90.91	0.48
Single (%)	9.62	16.67		3.57	16.67			20.00		15.00	9.09	
SBP (mmHg)												
Mean	131.8	135.5	0.29	135.0	130.6	0.15	134.0	131.2	0.37	138.9	129.6	0.004
SD	13.22	10.06		8.83	14.88		110.1	13.98		10.53	12.64	
DBP (mmHg)												
Mean	80.08	79.83	0.94	81.07	79.22	0.38	81.59	78.74	0.16	81.30	79.45	0.43
SD	7.74	9.85		8.70	7.61		8.20	7.88		8.81	7.78	
Plasma glucose (mg/dL)												
Mean	168.7	175.5	0.59	171.8	168.5	0.74	176.7	164.4	0.21	164.3	172.6	0.43
SD	40.36	38.36		35.02	43.57		30.08	40.83		38.19	40.65	
BMI (kg/m²)												
Mean	26.43	27.29	0.22	27.23	26.09	0.01	26.72	26.48	0.63	27.79	26.05	0.001
SD	1.93	2.18		1.36	2.26		1.80	2.15		1.87	1.81	
Detected age (years)												
Mean	46.50	51.75	0.07	47.36	47.58	0.92	47.24	47.69	0.85	55.05	44.05	0.000
SD	9.69	8.38		8.17	10.73		8.83	10.35		5.19	9.22	

Table 3b. The Relationship Between Behavioral and Other Risk Factors in Female

Factor	Food habit			Smoker	Alcoholic	Physically		P value
	Nonveg	Veg	P value	No	No	Inactive	Active	
Family history								
FH+ (%)	29.41	28.57	0.95	29.17	29.17	19.05	37.04	0.17
FH- (%)	70.59	71.43		70.83	70.83	80.95	62.96	
Marital status								
Married (%)	76.47	92.86	0.19	81.25	81.25	76.19	85.19	0.43
Single (%)	23.53	7.14		18.75	18.75	23.81	14.82	
SBP (mmHg)								
Mean	132.8	127.5	0.13	131.2	131.2	136.5	127.1	0.001
SD	10.72	10.50		10.82	10.82	8.42	10.82	
DBP (mmHg)								
Mean	79.38	78.86	0.82	79.23	79.23	79.86	78.74	0.58
SD	6.77	7.26		6.84	6.84	7.21	6.64	
Plasma glucose (mg/dL)								
Mean	170.2	179.2	0.53	172.8	172.8	168.48	176.2	0.53
SD	41.56	46.01		42.61	42.61	38.72	45.83	
BMI (kg/m²)								
Mean	25.49	25.12	0.61	25.38	25.38	26.46	24.54	0.01
SD	2.80	1.93		2.60	2.60	2.86	2.07	
Detected age (years)								
Mean	44.44	45.93	0.54	44.88	44.88	51.33	39.85	0.000
SD	11.33	5.21		9.91	9.91	5.33	9.78	

high in primary education level and low-income group in both males and females. But, there was significant difference in education level (p = 0.004) and income level (p = 0.02) in females. In males, smoking habit was high in secondary education level with medium income. And there was no smoking habit among female of any education and income level. Alcohol intake was high in higher education level and high-income level male.

Family history of diabetes reported high among both male (30.56%) and female (42.86%) with secondary education and no significant association found in income groups.

SBP was more in primary educated (137 mmHg) and lower income level (139 mmHg) males. Also similar trend was found in female diabetics. There was statistical significance found in diastolic pressure in males at income level and female at education levels.

Plasma glucose level was high in both male (174.9 mg/dL) and female (177.3 mg/dL) subjects with secondary education level. Male (173.3 mg/dL) diabetics with medium income and female (178 mg/dL) diabetics in lower income level had high glucose level. Male diabetics in lower income level had high BMI (27.7 kg/m^2). But female diabetics with primary education level had high BMI (26 kg/m^2).

Diabetes detected age was high among male diabetics (54 years) and low among female diabetics (46 years) who were in low income level. And diabetes was detected very early in both the males and females in high-income level.

Table 3a and 3b shows the relation between behavioral factors and other risk factors. Among male diabetics, significant association was found between marital status and smoking habit (p = 0.09). Systolic pressure in male diabetics was more in vegetarians (135.5 mmHg), smokers (135 mmHg), alcoholic (134 mmHg) and physically inactive (138.9 mmHg). But, there was statistical significance found only in physical activity and SBP (p = 0.003). In male diabetics, plasma glucose was more in vegetarians (175.58 mg/dL), smokers (171.86 mg/dL) and alcoholic (176 mg/dL). BMI was also more in vegetarians (27.2 kg/m^2), smokers (27.23 kg/m^2) and physically inactive (27.79 kg/m^2) males. But, BMI showed statistical significance between smokers and nonsmokers (p = 0.015) and physically active and inactive (p = 0.01) males.

In female diabetics, SBP was high in nonvegetarians (132.8 mmHg) and physically inactive (136.57 mmHg). Statistical significance (p = 0.01) was found between physical activity and SBP in females. Plasma glucose was found more in vegetarians (179.21 mg/dL) and physically active (176.22 mg/dL) females. In female diabetics, BMI showed significance (p = 0.01) with physical activity, it was more (26.46 kg/m^2) in case of physically inactive females. Duration of diabetes shows significant difference between physical active and inactive females (p = 0.02).

DISCUSSION

This study shows that there is significant difference between male and female diabetics only in certain factors. In the third National Health and Nutrition Examination Survey (2001), SES was significantly associated with type 2 diabetes in both African-American and white women. But, no relationship was found for men. Rathmann et al (2005) found that patients with long-standing diabetes along with severe disabling diabetic complication and poor health may result in low SES. According to Tang et al (2003) in the National Population Health Survey in Canada, low-income and education remained significantly associated with self-reported diabetes after controlling for BMI and physical activity in women. In men, the association was weaker and did not persist after controlling for risk factors. In the present study, there was significant difference in male only in few factors and SES. But, female showed significant inverse association with SES. This study reveals BMI was more among low-income level male diabetics. Poor diet, lack of physical activity and smoking habit had led to increase in BMI of these diabetic cases. Female diabetics in primary education level have more BMI. Lack of knowledge, consumption of junk food and sedentary lifestyle have increased the BMI of female diabetics. The association between SES and obesity was found in several studies, obesity being stronger in women than in men. Rathman et al (2005) analyzed that an inverse association of BMI and SES was found only in women. Ramachandran et al (2002) found that obesity is common in Indians and the adverse effect of central obesity is manifested in increasing tertiles of BMI both in men and women. BMI was found more in Indian women.

Physical inactivity is another major behavioral risk factor of type 2 diabetes. Lantz et al (1998) found in US adults that physical activity was less in low SES groups. Ford et al found women with higher SES were more physically active than women with low SES; whereas this social gradient may be less pronounced in men. Rathman et al (2005) in KORA survey proved that physical inactivity was reported more in men and women in low SES. In the present study, physical inactivity was

high among both male and female diabetics who were in low-income level. Physically inactive female were more in low education level. Normally well-educated and those who earn more are more likely to engage in high physical activity. Mathews et al (1997) identified people with high occupational status and in particular high education attainments were less likely to smoke and drink excess alcohol. Study conducted in Canada showed that lower income was inversely associated with smoking and diet intake. But in this present study, there was no difference in smoking habit between education level and income level in males. Alcohol intake was more in higher income group. Because of more work, stress, body pain and work tension they may resort to take alcohol.

Kivimaki et al (2004) identified that there was a weak inverse relationship between SES and BP. Higher education attainment was associated with lower SBP. But association involving occupational status and DBP did not reach statistical significance. Stronger links with lifestyle and risk factor may partially explain the greater BP differences between educational levels and occupational status.

Marmot et al (2001) in the Whitehall study found difference in SBP was no more than 3-5 mmHg between the highest and lowest employment grade. In the INTER-SALT study, Stamler (1992) proved an inverse association between years of education and BP. The US Hanes III study showed no association between SES and BP. In this present study, SBP was more in primary education and low-income level in both males and females. Tension, worry about the uncertainty in life, work pressure and poor diet regulation may increase the BMI. Previous researches consistently showed a positive relationship between body weight and BP. Increased BMI was the predictor of higher BP.

Hoskins et al found that a family history of diabetes was a risk factor for diabetes in Melanesians and Indians living in Fiji. Ramachandran et al (1988) reported a high prevalence of diabetes among Indian children who had one or two diabetic parents. But in the present study, there was no significant difference in family history of diabetes and SES between males and females.

This study shows low-income male diabetic had longer duration of diabetes and diabetes detected age was also higher. Even in female diabetics, primary education group had diabetes over long duration and the detected age was high. Due to poverty and lack of knowledge, these diabetic patients were not aware of the free healthcare facilities and never tried to avail any type of medical attention for treating diabetes, till they got complication due to prolonged untreated diabetes.

In conclusion, in female diabetics SES was found to be significantly and inversely related to physical activity, marital status, food habit, duration and SBP. In males, these association were weaker or absent when education level was considered. But in income level, significant differences were found in SBP and detected age. Significant differences were found in both male and female behavioral characters and other risk factors like SBP and BMI. Physical inactivity leads to high BMI and it increases SBP. But, the differences between male and female diabetic patients need to be further investigated.

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New Zealand Reaches 100 Days Mark without Domestic Virus Case

Wellington - New Zealand recorded 100 days without domestic transmission of the coronavirus on 9th August. However, people were cautioned against complacency as countries like Vietnam and Australia, where the virus was once under control, are now fighting a resurgence.

The country has 23 active cases in isolation facilities, and 1,219 COVID-19 cases in total, so far. While people in the country have returned to normal life, authorities are concerned that people were not getting testing done, not using the government contact tracing apps, and were even ignoring hygiene rules. Director-General of Health, Dr Ashley Bloomfield has stated that attaining 100 days without community transmission represents a significant milestone; however, it won't be correct to be complacent at this time… (*Reuters*)

Multisystem Inflammatory Syndrome Linked to COVID-19 Found in Around 600 US Children, Says CDC

Around 600 children were admitted to US hospitals with a rare inflammatory syndrome - Multisystem inflammatory syndrome in children (MIS-C)-associated with COVID-19, over a period of 4 months during the peak of the pandemic, states a CDC report.

This severe condition has symptoms like those of toxic shock and Kawasaki disease, including fever, rashes, swollen glands and, in severe cases, heart inflammation. The condition has been observed in children and adolescent patients about 2-4 weeks after the onset of COVID-19. Among the cases, all patients tested positive for COVID-19 and 10 have died, reported the CDC… (*HT*)

Every citizen of India should have the right to accessible, affordable, quality and safe heart care irrespective of his/her economical background

HEART CARE FOUNDATION OF INDIA
A Not-For-Profit Organisation

Sameer Malik Heart Care Foundation Fund

An Initiative of Heart Care Foundation of India

E-219, Greater Kailash, Part I, New Delhi - 110048 E-mail: heartcarefoundationfund@gmail.com Helpline Number: +91 - 9958771177

"No one should die of heart disease just because he/she cannot afford it"

About Sameer Malik Heart Care Foundation Fund

"Sameer Malik Heart Care Foundation Fund" it is an initiative of the Heart Care Foundation of India created with an objective to cater to the heart care needs of people.

Objectives

- Assist heart patients belonging to economically weaker sections of the society in getting affordable and quality treatment.
- Raise awareness about the fundamental right of individuals to medical treatment irrespective of their religion or economical background.
- Sensitize the central and state government about the need for a National Cardiovascular Disease Control Program.
- Encourage and involve key stakeholders such as other NGOs, private institutions and individual to help reduce the number of deaths due to heart disease in the country.
- To promote heart care research in India.
- To promote and train hands-only CPR.

Activities of the Fund

Financial Assistance

Financial assistance is given to eligible non emergent heart patients. Apart from its own resources, the fund raises money through donations, aid from individuals, organizations, professional bodies, associations and other philanthropic organizations, etc.

After the sanction of grant, the fund members facilitate the patient in getting his/her heart intervention done at state of art heart hospitals in Delhi NCR like Medanta – The Medicity, National Heart Institute, All India Institute of Medical Sciences (AIIMS), RML Hospital, GB Pant Hospital, Jaipur Golden Hospital, etc. The money is transferred directly to the concerned hospital where surgery is to be done.

Drug Subsidy

The HCFI Fund has tied up with Helpline Pharmacy in Delhi to facilitate patients with medicines at highly discounted rates (up to 50%) post surgery.

The HCFI Fund has also tied up for providing up to 50% discount on imaging (CT, MR, CT angiography, etc.)

Who is Eligible?

All heart patients who need pacemakers, valve replacement, bypass surgery, surgery for congenital heart diseases, etc. are eligible to apply for assistance from the Fund. The Application form can be downloaded from the website of the Fund. http://heartcarefoundationfund.heartcarefoundation.org and submitted in the HCFI Fund office.

Important Notes

- The patient must be a citizen of India with valid Voter ID Card/ Aadhaar Card/Driving License.
- The patient must be needy and underprivileged, to be assessed by Fund Committee.
- The HCFI Fund reserves the right to accept/reject any application for financial assistance without assigning any reasons thereof.
- The review of applications may take 4-6 weeks.
- All applications are judged on merit by a Medical Advisory Board who meet every Tuesday and decide on the acceptance/rejection of applications.
- The HCFI Fund is not responsible for failure of treatment/death of patient during or after the treatment has been rendered to the patient at designated hospitals.
- The HCFI Fund reserves the right to advise/direct the beneficiary to the designated hospital for the treatment.
- The financial assistance granted will be given directly to the treating hospital/medical center.
- The HCFI Fund has the right to print/publish/webcast/web post details of the patient including photos, and other details. (Under taking needs to be given to the HCFI Fund to publish the medical details so that more people can be benefitted).
- The HCFI Fund does not provide assistance for any emergent heart interventions.

Check List of Documents to be Submitted with Application Form

- Passport size photo of the patient and the family
- A copy of medical records
- Identity proof with proof of residence
- Income proof (preferably given by SDM)
- BPL Card (If Card holder)
- Details of financial assistance taken/applied from other sources (Prime Minister's Relief Fund, National Illness Assistance Fund Ministry of Health Govt of India, Rotary Relief Fund, Delhi Arogya Kosh, Delhi Arogya Nidhi), etc., if anyone.

Free Diagnostic Facility

The Fund has installed the latest State-of-the-Art 3 D Color Doppler EPIQ 7C Philips at E – 219, Greater Kailash, Part 1, New Delhi.
This machine is used to screen children and adult patients for any heart disease.

Free Education and Employment Facility

HCFI has tied up with a leading educational institution and an export house in Delhi NCR to adopt and to provide free education and employment opportunities to needy heart patients post surgery. Girls and women will be preferred.

Laboratory Subsidy

HCFI has also tied up with leading laboratories in Delhi to give up to 50% discounts on all pathological lab tests.

Help Us to Save Lives

The Foundation seeks support, donations and contributions from individuals, organizations and establishments both private and governmental in its endeavor to reduce the number of deaths due to heart disease in the country. All donations made towards the Heart Care Foundation Fund are exempted from tax under Section 80 G of the IT Act (1961) within India. The Fund is also eligible for overseas donations under FCRA Registration (Reg. No 231650979). The objectives and activities of the trust are charitable within the meaning of 2 (15) of the IT Act 1961.

Donate Now...

About Heart Care Foundation of India

Heart Care Foundation of India was founded in 1986 as a National Charitable Trust with the basic objective of creating awareness about all aspects of health for people from all walks of life incorporating all pathies using low-cost infotainment modules under one roof.

HCFI is the only NGO in the country on whose community-based health awareness events, the Government of India has released two commemorative national stamps (Rs 1 in 1991 on Run For The Heart and Rs 6.50 in 1993 on Heart Care Festival- First Perfect Health Mela). In February 2012, Government of Rajasthan also released one Cancellation stamp for organizing the first mega health camp at Ajmer.

Objectives

- Preventive Health Care Education
- Perfect Health Mela
- Providing Financial Support for Heart Care Interventions
- Reversal of Sudden Cardiac Death Through CPR-10 Training Workshops
- Research in Heart Care

Heart Care Foundation Blood Donation Camps

The Heart Care Foundation organizes regular blood donation camps. The blood collected is used for patients undergoing heart surgeries in various institutions across Delhi.

Committee Members

Chief Patron

Raghu Kataria

Entrepreneur

President

Dr KK Aggarwal

Padma Shri, Dr BC Roy National & DST National Science Communication Awardee

Governing Council Members

Sumi Malik
Vivek Kumar
Karna Chopra
Dr Veena Aggarwal
Veena Jaju
Naina Aggarwal
Nilesh Aggarwal
H M Bangur

Advisors

Mukul Rohtagi
Ashok Chakradhar

Executive Council Members

Deep Malik
Geeta Anand
Dr Uday Kakroo
Harish Malik
Aarti Upadhyay
Raj Kumar Daga
Shalin Kataria
Anisha Kataria
Vishnu Sureka
Rishab Soni

This Fund is dedicated to the memory of **Sameer Malik** who was an unfortunate victim of sudden cardiac death at a young age.

- HCFI has associated with Shree Cement Ltd. for newspaper and outdoor publicity campaign
- HCFI also provides Free ambulance services for adopted heart patients
- HCFI has also tied up with Manav Ashray to provide free/highly subsidized accommodation to heart patients & their families visiting Delhi for treatment.

http://heartcarefoundationfund.heartcarefoundation.org