



A PERSPECTIVE STUDY OF LIFESTYLE AND THE RISK OF DIABETES IN MEN

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ABSTRACT

India has a larger number of men that bite the dust from diabetes than some other nation, another investigation says. The quantity of individuals who experience the ill effects of the condition is taking off. An expected 422 million grown-ups worldwide were living with diabetes in 2014 contrasted and 108 million of every 1980, the United Nations World Health Organization said. Half of these grown-ups lived in only five nations including China, India, Indonesia, Brazil and the U.S. An expected 122,700 men matured 30 or more bite the dust from diabetes in India consistently, contrasted and 86,300 men in China, a progressively crowded nation. More ladies in China kick the bucket of diabetes, 138,400, contrasted and 97,300 in India. In the U.S., 37,000 men and 34,000 ladies bite the dust of diabetes, the examination said. Type-2 diabetes is a noteworthy, non-transmittable illness with expanding commonness at a worldwide dimension. Type-2 diabetes outcomes when the body does not make enough insulin or the body can't utilize the insulin it produces. Type-2 diabetes is the main source of unexpected losses. Inappropriately oversaw, it can prompt various medical problems, including heart infections, stroke, kidney sickness, visual deficiency, nerve harm, leg and foot removals, and demise. So as to keep this condition, move ought to be made with respect to the modifiable variables that impact its advancement lifestyle and dietary propensities. Be that as it may, with legitimate testing, treatment and lifestyle changes, smart dieting as a system, advance strolling, work out, and other physical exercises effect sly affect human wellbeing and anticipation or treatment of diabetes, elevating adherence to this example is of impressive general wellbeing significance. Regardless of adequate research and medicines accessible, there is one disturbing actuality about diabetes: men who experience the ill effects of this lifestyle ailment have it more awful, by and large, than ladies with diabetes. Be that as it may, in men, diabetes exhibits a few one of kind complexities like sexual ineptitude, lower testosterone which lead to melancholy and tension. Hence, the present study has been focusing on the lifestyle and the risk of diabetes in men.

KEYWORDS : Type 2 diabetes, Lifestyle Diseases, Diabetes Mellitus, Strategies and Risks.

INTRODUCTION

Diabetes is quick picking up the status of a potential pestilence in India with in excess of 62 million diabetic people right now determined to have the malady. In 2000, India (31.7 million) finished the world with the most noteworthy number of individuals with diabetes mellitus pursued by China (20.8 million) with the United States (17.7 million) in second and third spot separately. As per Wild et al. the pervasiveness of diabetes is anticipated to twofold universally from 171 million of every 2000 to 366 million out of 2030 with a greatest increment in India. It is anticipated that by 2030 diabetes mellitus may burden up to 79.4 million people in India, while China (42.3 million) and the United States (30.3 million) will likewise observe noteworthy increments in those influenced by the malady. India at present faces a questionable future in connection to the potential weight that diabetes may force upon the nation. Numerous impacts influence the commonness of infection all through a nation, and recognizable proof of those elements is important to encourage change when confronting wellbeing challenges. The etiology of diabetes in India is multi-factorial and incorporates hereditary variables combined with natural impacts, for example, stoutness related with rising expectations for everyday comforts, unflinching urban movement, and lifestyle changes. However in spite of the occurrence of diabetes inside India, there are no across the nation and few multi-driven examinations led on the commonness of diabetes and its complications.

OPERATIONAL DEFINITIONS

Diabetes Mellitus (DM), ordinarily alluded to as diabetes, is a gathering of metabolic issue in which there are high glucose levels over a delayed period. Manifestations of high glucose incorporate regular urine, expanded thirst, and expanded appetite. Whenever left untreated, diabetes can cause numerous complexities. Intense complexities can incorporate diabetic ketoacidosis, hyperosmolar hyperglycaemic state, or passing.

Diabetes mellitus type 1, otherwise called type 1 diabetes is a

type of diabetes mellitus in which next to no or no insulin is created by the pancreas before treatment, this outcomes in high glucose levels in the body.

Diabetes mellitus type 2 otherwise called type 2 diabetes is a long haul metabolic turmoil that is portrayed by high glucose, insulin obstruction, and relative absence of insulin. Type 2 diabetes basically happens because of weight and absence of activity.

INDIA HAS THE HIGHEST NUMBER OF DIABETES PATIENTS IN THE WORLD

The International Diabetes Federation extends that the quantity of Indians with diabetes will take off to 123 million by 2040. As of now, 5% of the Indian populace experiences diabetes. While there are various medical problems that India is fighting with, diabetes is a standout amongst the most stressing. The International Diabetes Federation extends that the quantity of Indians with diabetes will take off to 123 million by 2040. Right now, 5% of the Indian populace experiences diabetes. It is a constant sickness where one's body can't control its blood glucose level, which may likewise prompt coronary illness, kidney disappointment, visual deficiency, removals and so forth. Grown-ups with diabetes have an a few overlap expanded danger of heart assaults and strokes. World Health Organization has expressed that diabetes is bound to be found in low and center salary nations. As indicated by their information, there was a gauge of 3.4 million dying because of high glucose in India. In the year 2000, the all out number of diabetics in India remained at 31.7 million and is relied upon to ascend by over 100% in the year 2030 to represent 79.4 million. It right now influences an expected 143 million individuals worldwide and the number is developing quickly.

REASON FOR THE RAPID INCREASE IN DIABETES CASES IN INDIA

Indian nourishment propensities are regarded to be unfortunate, because of the nearness of high amount of fats

and starches. People with over the top weight are at a more serious danger of falling prey to lifestyle ailments, for example, diabetes. Gorging is a propensity creating at a developing pace in teenagers and youthful grown-ups. The most noticeable work culture sustained in the nation, which incorporates sitting for quite a long time in one position and eating cheap food with almost no physical action, is a noteworthy supporter of diabetes in the working age gathering. The legislature, understanding the earnestness of the issue, attempted to actualize ventures to either check diabetes or elements prompting it. For example, it in part exacted a duty on sugar-improved refreshments and carbonated beverages. Regardless of whether it developed the ideal result is yet to be seen. Diabetes isn't something the administration can battle with a couple of arrangements since it is a lifestyle illness which is a consequence of one's numbness towards his dietary patterns and physical movement. Getting customary exercise, eating a sound and adjusted eating regimen, maintaining a strategic distance from expanded fat and consuming tobacco, are need to take essential counteractive action strategies. It is additionally prudent to experience normal wellbeing registration since high glucose isn't enlisted by an individual except if it is outrageous, which can be deadly.

India is one of the 6 nations of the IDF SEA locale. 425 million individuals have diabetes on the planet and 82 million individuals in the SEA Region; by 2045 this will ascend to 151 million. There were over 72,946,400 instances of diabetes in India in 2017.

Table 1: Statistical details of Total Diabetes in India

Total adult population	829,491,000
Prevalence of diabetes in adults	8.8 %
Total cases of diabetes in adults	72,946,400

RISK OF MEN WITH DIABETES

DIABETES AND SEXUAL PROBLEMS FOR MEN

A man's fertility isn't influenced by diabetes. Notwithstanding, diabetes can once in a while add to sexual issues for men. The most widely recognized issue is erectile brokenness (otherwise called weakness), when the man can't get or keep an erection sufficiently long for intercourse. At the point when men have erectile brokenness, discharge could possibly be influenced. For men with diabetes, diminished blood stream and nerve harm to the penis can be the hidden explanations behind erectile brokenness. Men with diabetes who experience erectile brokenness regularly have different inconveniences identified with nerve harm or blood flow issues. This can incorporate hypertension, elevated cholesterol or coronary illness. Men with diabetes may have a low drive and may not have a craving for having intercourse when their blood glucose levels are high. Most men with will encounter the periodic trouble having an erection. Both physical and mental components can add to this, including being worn out, focused or discouraged, or drinking an excess of liquor. A few prescriptions can likewise cause erectile brokenness, for example, a few tablets used to treat hypertension, melancholy or stomach ulcers.

ERECTILE DYSFUNCTION

Erectile brokenness is a reliable failure to have an erection firm enough for sex. The condition incorporates the all out powerlessness to have an erection and the failure to support an erection. Assessments of the pervasiveness of erectile brokenness in men with diabetes differ broadly, extending from 20 to 75 percent. Men who have diabetes are a few times bound to have erectile brokenness than men who don't have diabetes. Among men with erectile brokenness, those with diabetes may encounter the issue as much as 10 to 15 years sooner than men without diabetes. Past research proposes that erectile brokenness might be an early marker of diabetes, especially in men ages 45 and more youthful. Notwithstanding

diabetes, other real reasons for erectile brokenness incorporate hypertension, kidney illness, liquor misuse, and vein infection. Erectile brokenness may likewise happen on account of the symptoms of prescriptions, mental elements, smoking, and hormonal lacks.

Men who experience erectile brokenness ought to consider chatting with a human services supplier. The human services supplier may get some information about the patient's medicinal history, the type and recurrence of sexual issues, drugs, smoking and drinking propensities, and other wellbeing conditions. A physical test and lab tests may help pinpoint reasons for sexual issues. The social insurance supplier will check blood glucose control and hormone levels and may request that the patient complete a test at home that checks for erections that happen amid rest. The social insurance supplier may likewise ask whether the patient is discouraged or has as of late experienced annoying changes throughout his life. Medications for erectile brokenness brought about by nerve harm, additionally called neuropathy, change broadly and run from oral pills, a vacuum siphon, pellets set in the urethra, and shots straightforwardly into the penis, to medical procedure. These strategies have favourable circumstances and hindrances. Mental directing to decrease uneasiness or address different issues might be fundamental. Medical procedure to embed a gadget to help in erection or to fix corridors is normally utilized as a treatment after all others fizzle.

RETROGRADE EJACULATION

Retrograde discharge is a condition in which part or the majority of a man's semen goes into the bladder rather than out the tip of the penis amid discharge. Retrograde discharge happens when interior muscles, called sphincters, don't work typically. A sphincter consequently opens or shuts a section in the body. With retrograde discharge, semen enters the bladder, blends with urine, and leaves the body amid urine without hurting the bladder. A man encountering retrograde discharge may see that little semen is released amid discharge or may wind up mindful of the condition if richness issues emerge. Examination of a urine test after discharge will uncover the nearness of semen. Poor blood glucose control and the subsequent nerve harm can cause retrograde discharge. Different causes incorporate prostate medical procedure and a few meds. Retrograde discharge brought about by diabetes or medical procedure might be assisted with a prescription that fortifies the muscle tone of the sphincter in the bladder. A urologist experienced in barrenness medicines may help with systems to advance richness, for example, gathering sperm from the urine and after that utilizing the sperm for managed impregnation.

BLADDER PROBLEMS

Numerous occasions or conditions can harm nerves that control bladder work, including diabetes and different maladies, wounds, and diseases. The greater parts of people with diabetes have bladder brokenness due to harm to nerves that control bladder work. Bladder brokenness can profoundly affect an individual's personal satisfaction. Basic bladder issues in people with diabetes incorporate the accompanying:

Overactive bladder: Damaged nerves may send signs to the bladder at the wrong time, making its muscles urinary recurrence urine at least eight times each day or at least two times each night urinary criticalness the unexpected, solid need to urine promptly, ask incontinence spillage of urine that pursues an abrupt, compelling impulse to urine

Poor control of sphincter muscles: Sphincter muscles encompass the urethra the cylinder that conveys urine from the bladder to the outside of the body and keep it shut to hold

urine in the bladder. On the off chance that the nerves to the sphincter muscles are harmed, the muscles may turn out to be free and permit spillage or remain tight when an individual is attempting to discharge urine.

Urine Control: For certain individuals, nerve harm keeps their bladder muscles from getting the message that the time has come to urinate or makes the muscles excessively frail to totally purge the bladder. On the off chance that the bladder turns out to be excessively full, urine may back up and the expanding weight may harm the kidneys. On the off chance that urine stays in the body excessively long, a disease can create in the kidneys or bladder. Urine maintenance may likewise prompt flood incontinence spillage of urine when the bladder is full and does not void legitimately.

The end of bladder issues may include checking both bladder work and the presence of the bladder's inside. Tests may incorporate x beams, urodynamic testing to assess bladder work, and cystoscopy, a test that utilizes a gadget called a cystoscope to see within the bladder. Treatment of bladder issues because of nerve harm relies upon the particular issue. In the event that the principle issue is urine maintenance, treatment may include prescription to advance better bladder exhausting and training called planned voiding urinating on a calendar to advance progressively productive urinate. Now and again individuals need to intermittently embed a slim cylinder called a catheter through the urethra into the bladder to deplete the urine. Figuring out how to tell when the bladder is full and how to knead the lower guts to completely discharge the bladder can help also. On the off chance that urinary spillage is the primary issue, drugs, fortifying muscles with Kegel activities, or medical procedure can help. Treatment for the urinary desperation and recurrence of overactive bladder may include meds, coordinated voiding, Kegel activities, and medical procedure at times.

URINARY TRACT INFECTIONS

Infections can happen when microscopic organisms, typically from the stomach related framework, achieve the urinary tract. In the event that microbes are developing in the urethra, the infection is called urethritis. The microbes may go up the urinary tract and cause a bladder infection, called cystitis. An untreated infection may go more remote into the body and cause pyelonephritis, a kidney disease. A few people have incessant or intermittent urinary tract infections. Side effects of urinary tract infections can incorporate

- A visit inclination to urinate
- Pain in the bladder or urethra amid urinate
- Cloudy or rosy urine
- In men, a sentiment of totality in the rectum

On the off chance that the infection is in the kidneys, an individual may have sickness, feel torment in the back or side, and have a fever. Visit urinate can be an indication of high blood glucose, so results from ongoing blood glucose observing ought to be assessed. The social insurance supplier will request a urinate test, which will be dissected for microbes and discharge. Extra tests might be done if the patient has visit urinary tract diseases. Ultrasound test gives pictures from the reverberation examples of sound waves skipped over from interior organs. An intravenous pyelogram utilizes an exceptional colour to upgrade x-beam pictures of the urinary tract. Cystoscopy may be performed.

Early finding and treatment are critical to avert progressively genuine infections. To clear up a urinary tract disease, the social insurance supplier will likely endorse anti-microbial treatment dependent on the kind of microscopic organisms in the urinate. Kidney diseases are increasingly genuine and may require half a month of anti-infection treatment. Drinking a lot of liquids will help keep another infection.

FACTORS THAT INCREASE THE RISK OF DIABETES

Raised blood sugars put weight on the body and can make harm the nerves and little veins, diminishing course. This implies:

- The heart needs to work more earnestly to convey blood to the body's tissues; particularly those further far from itself, for example, the feet and hands.
- The expanded remaining task at hand in addition to harm to the heart's own veins makes the organ debilitate and in the long run fizzle.
- Absence of blood to the body's different organs and tissues keeps them from oxygen and sustenance, which can prompt putrefaction or tissue passing.

LIFESTYLE OF MEN WITH DIABETES DIET AND DIABETES

The valuable impact of the dietary example on diabetes mellitus and glucose digestion as a rule and customary nourishment design was related with a huge decrease in the danger of creating type-2 diabetes. The dietary example accentuates an utilization of fat fundamentally from nourishments high in unsaturated fats, and empowers day by day utilization of organic products, vegetables, low fat dairy items and entire grains, low utilization of fish, poultry, tree nuts, vegetables, less utilization of red meat. The piece of eating regimen is a standout amongst the best known dietary examples for its useful consequences for human wellbeing that may demonstrate helpfully against the improvement of type 2 diabetes, including diminished oxidative pressure and insulin obstruction. High utilization of vegetables, organic products, vegetables, nuts, fish, oats and oil prompts a high proportion of monounsaturated unsaturated fats to soaked unsaturated fats, a low admission of trans unsaturated fats, and high ingestion of dietary fiber, cell reinforcements, polyphenols. The eating regimens are portrayed by a low level of vitality thickness by and large; such eating routine counteract weight gain and apply a defensive impact on the improvement of type 2 diabetes, a condition that is incompletely interceded through weight support. More noteworthy adherence to the eating regimen in blend with light physical movement was related with lower chances of having diabetes after modification for different variables. Then again, a paleolithic eating routine (i.e., an eating routine comprising of lean meat, fish, shellfish, foods grown from the ground, roots, eggs and nuts, however not grains, dairy items, salt or refined fats, and sugar) was related with checked improvement of glucose resistance while control subjects who were encouraged to pursue an eating regimen did not fundamentally improve their glucose resilience regardless of abatements in weight and midriff circuit. Individuals well on the way to get diabetes are: People who are overweight, chest area corpulence, have a family ancestry of diabetes, age 40 or more established, and ladies (half more regularly than men).

CHANGING LIFESTYLE OF MEN FROM NORMAL TO TREATMENT BASED

Every individual needs individualized treatment. Type-1 diabetes dependably requires insulin, diet, and exercise. Type-2 diabetics require insulin or oral hypoglycemic operators (drug that enables lower to glucose), if diet and exercise alone neglect to bring down blood glucose. On the off chance that you have diabetes, you need a therapeutic group (specialist, nutritionist, and wellbeing teacher or medical attendant) working with you. Whichever kind of diabetes you have, the way to legitimate control is adjusting the glucose and the insulin in the blood. This implies modifying your eating routine, action, and now and again taking medication.

GENERAL DIETARY GUIDELINES

Present day dietary management of diabetes basically includes adjustments of the quality and amount of sustenance to be taken by the diabetic patient. The accompanying rules

are material to diabetes regardless of type, weight status, age, sex, or occupation.

- Most of the sugar expended ought to be as starch (polysaccharides, for example, maize, rice, beans, bread, potatoes and so forth).
- All refined sugars, for example, glucose, sucrose, and their items (sodas, desserts, toffees, and so forth.) and nectar ought to be dodged, aside from amid extreme disease or scenes of hypoglycaemia. These nourishments contain straightforward sugar, which is effectively consumed causing fast ascent in glucose.
- Non-nutritive sugars, e.g., Canderel, saccharine, NutraSweet, aspartame are appropriate sugar substitutes for diabetic subjects.
- Animal fat, for example, spread, grease, egg yolk, and different sustenances high in immersed unsaturated fats and cholesterol ought to be decreased to a base and be supplanted with vegetable oils, especially polyunsaturated fats.
- Salt ought to be decreased whether hypertensive or not.
- Protein (fish, meat, beans, crab, crawfish, soyabean, chicken, and so on.) and salt are confined for those with diabetic nephropathy.
- Cigarette smoking ought to be kept away from by diabetic patients. Liquor ought to be taken just with some restraint.
- The things took into account free utilization include: Water, green verdant vegetables, tomatoes, onions, cucumber, aubergine, peppers, vegetable plate of mixed greens without cream. Any brand of tea, espresso, or beverages that contain low or no calories.
- For patients too sick to even think about eating strong nourishment, a liquid or semi-strong eating regimen ought to be substituted (papaya, soya bean, custard, and so on.).
- Patients treated with insulin or certain oral hypoglycaemic specialists, e.g., sulfonylurea must be encouraged to eat consistently and frequently to forestall hypoglycaemia-3 suppers every day in addition to appropriate snacks in the middle of, e.g., crisp organic products.
- Small dinners separated throughout the day, as opposed to 1 or 2 major suppers, are useful in keeping away from post-pyramidal tops in glucose.

At the point when overweight diabetic patients drop some weight by cutting down 'serving sizes' and calories, insulin affectability improves, along these lines upgrading drug treatment. The major standard behind upkeep of body weight is the vitality balance. This gathering ought to be urged to keep up their present load by: Maintaining current 'serving sizes,' eating about a similar measure of nourishment every day, eating at about similar occasions every day, taking their medications at similar occasions every day, and practicing at similar occasions every day. These patients ought to likewise attempt to pick their day by day nourishments from starches, vegetables, natural products, and protein, while restricting the measure of fats.

DIETARY APPROACHES TO DIABETES

Food can be amazing in counteracting and turning around diabetes. In any case, dietary methodologies have changed as we have studied the ailment. The conventional way to deal with diabetes centers around constraining refined sugars and nourishments that discharge sugars amid absorption starches, breads, organic products, and so forth. With sugars diminished, the eating regimen may contain an undesirable measure of fat and protein. Consequently, diabetes specialists have taken consideration to restrain fats-particularly soaked fats that can raise cholesterol levels, and to restrict protein for individuals with disabled kidney work. The new methodology concentrates on fat. Fat is an issue for individuals with diabetes. The more fat there is in the eating routine, the harder time insulin has in getting glucose into the cells. On the other hand, limiting fat admission and

decreasing muscle versus fat help insulin carry out its responsibility much better. More current treatment programs definitely diminish meats, high-fat dairy items, and oils. In the meantime, they increment grains, vegetables, natural products, and vegetables. The examination found that patients on oral meds and patients on insulin had the capacity to get off of their meds after some days on a close vegan diet and exercise program. Amid 2 and 3-year subsequent meet-ups, a great many people with diabetes treated with this routine have held their additions. The dietary changes are basic, however significant, and they work.

INCREASING LIFE EXPECTANCY/RECOMMENDATIONS

Recommendations for expanding future in individuals with diabetes are like administration and anticipation tips. The best method to diminish the impact that diabetes has on future is by keeping up solid glucose levels. Approaches to build future in those with type 2 diabetes include:

Eating refreshingly - lessen utilization of nourishments containing basic sugars, for example, squeezes and confections that can cause glucose spikes. Concentrate on eating increasingly complex starches, for example, entire grains and vegetables.

Exercising - as meagre as 30 minutes of moderate physical movement five times each week can help balance out blood sugars after some time.

Losing weight - a complete body weight reduction of 5-10 percent has been appeared to decrease the effect of diabetes.

Monitoring and treating glucose levels - following blood sugars recognizes swings so high or low can be tended to as they happen. The executive drugs, for example, metformin additionally help balance out blood sugars however just whenever taken as recommended.

Reducing stress - stress invigorates the arrival of hormones that can raise blood sugars and meddle with insulin guideline. Yoga, contemplation, and addressing an instructor or physiologist can help battle pressure.

Treating different conditions - numerous wellbeing conditions can build the effect of diabetes, for example, kidney and coronary illness, hypertension, and elevated cholesterol.

A 2017 examination found that diabetes self-administration plans decreased the danger of mortality in individuals with type 2 diabetes. Indeed, analysts found that individuals with type 2 diabetes who were taking metformin had a marginally expanded future contrasted with those without diabetes. Avoiding spikes and plunges in blood sugars diminishes the measure of pressure put on the body, specifically the liver, kidneys, and heart.

CONCLUSION

Diabetes Mellitus (DM) is achieving possibly pandemic extents in India. The dimension of dismalness and mortality because of diabetes and its potential confusions are tremendous, and present huge human services troubles on the two families and society. Worryingly, diabetes is currently being appeared to be related with a range of intricacies and to happen at a generally more youthful age inside the nation. In India, the consistent movement of individuals from country to urban territories, the monetary blast, and relating change in way of life are altogether influencing the dimension of diabetes. However in spite of the expansion in diabetes there remains a lack of studies examining the exact status of the illness in view of the geological, financial, and ethnic nature of such a huge and various nation. Given the sickness is

currently exceptionally obvious over all areas of society inside India, there is presently the interest for critical research and mediation - at provincial and national dimensions - to attempt to moderate the conceivably calamitous increment in diabetes that is anticipated for the up and coming years.

DM ought to be considered in all men giving ED. Fasting glucose levels are normally adequate to screen generally men. Realized diabetics ought to be urged to have fantastic control of their DM to maintain a strategic distance from the endless complexities of DM, yet additionally intense impacts, particularly, those of hyperglycaemia on erectile movement. Avoidance is a key factor with DM. Patients ought to stay away from any elements that can build the danger of ED. Smoking is likely the most adverse cofactor of diabetes that builds atherosclerosis. Dyslipidemia, hypertension and weight are additionally cofactors that must be controlled to diminish the occurrence of ED, yet additionally coronary illness. Later on, it might be conceivable that cell reinforcements will be prescribed for diabetic patients to counteract incessant confusions. Research is as yet required to anticipate long haul intricacies since they can happen even in all around controlled diabetic patients.

REFERENCES

1. Fani K, Lundin AP, Beyer MM, Jimenez FA, Friedman EA. Pathology of the penis in long-term diabetic rats. *Diabetologia* 1983;25:424-8.
2. Ford CD, Kim MJ, Dancy BL (2009) Perceptions of hypertension and contributing personal and environmental factors among rural southern African American women. *Ethn Dis.* 19(4):407-13.
3. Hsueh WA, Anderson PW. Hypertension, the endothelial cell, and the vascular complications of diabetes mellitus. *Hypertension* 1992;20:253-63.
4. Kasje WN, Denig P, Haaijer-Ruskamp FM (2002) Specialists' expectations regarding joint treatment guidelines for primary and secondary care. *Int J Qual Health Care.* 14(6):509-18.
5. Murimi MW, Harpel T (2010) Practicing preventive health: The underlying culture among low-income rural populations. *J Rural Health.* 26(3):273-82.
6. Parker WA, Steyn NP, Levitt NS, Lombard CJ (2012) Health promotion services for patients having non-communicable diseases: Feedback from patients and health care providers in cape town, South Africa. *BMC Public Health.* 4;12:503,2458-12-503.
7. Ramachandran S, Augustine C, Viswanathan V, et al. Improving psychosocial care: the Indian experience. *Diabetes Voice.* 2005;50(1):19-21.
8. Ruderman NB, Williamson JR, Brownlee M. Glucose and diabetic vascular disease. *FASEB J* 1992; 6:2905-14
9. Taylor PD, Poston L. The effect of hyperglycaemia on function of rat isolated mesenteric resistance artery. *Br J Pharmacol* 1994;113:801-8.
10. Williams E, Timperley WR, Ward JD, Duckworth T. Electron microscopical studies of vessels in diabetic neuropathy. *J Clin Pathol* 1980;33:462-70.