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## Effectiveness of turmeric and black cumin powder on cholesterol levels among obese women's

**Karpagam K and Sangavi J**

### Abstract

**Background:** High cholesterol is a major public health problem in developing countries especially in the United States, high cholesterol leads to fatty deposits in blood vessels. Eventually, these deposits grow, making it difficult for enough blood to flow through arteries. Those deposits can break suddenly and form a clot that cause a heart attack or stroke.

**Aim:** The present study aim to reduce the cholesterol level among obese women, in community area at Atthivakkam.

**Methodology:** The study was pre experimental one group pre and post test design among 30 high cholesterol women by using purposive sampling technique the samples were gathered and demographic data were assessed, Weight was measured using weighing machine, BMI calculated, triglycerides and low density lipo-protein levels were assessed by pre test.

**Result:** Among 30 obese women, mean score of triglycerides in post test (132.05) was higher than pre test (269.47). In low-density lipo protein level among obese women, the post test mean (92.3076) was higher than the pre test mean (128.846).

**Conclusion:** The study proves that turmeric and black cumin seed is highly effective in reducing cholesterol level in obese women.

**Keywords:** Effectiveness, turmeric and black cumin powder, cholesterol levels, obese women's

### Introduction

Obesity is a medical condition in which excess body fat has accumulated, a disorder involving excessive body fat that increases the risk of health problems. Obesity is a complex disease involving an excessive amount of body fat. Obesity isn't just a cosmetic concern. it is a medical problem that increases your risk of other diseases and health problems, such as heart diseases, diabetes, high blood pressure and certain cancers. While diet and exercise along may not be enough to cure obesity <sup>[1]</sup>.

Cholesterol is an organic molecule. It is a sterol, a type of lipid. Cholesterol is a biosynthesized by all animal cells and is an essential structural component of animal cell membranes. Yet having too much LDL cholesterol can be a problem. High LDL cholesterol over time can damage your arteries, contribute to heart disease, and increase your risk for a stroke. The levels of 100 to 129 mg/dl are acceptable for people with no health issues but may be of more concern for those with heart disease or heart disease risk factors. A reading of 130 to 159 mg/dl is borderline high and 160 to 189 mg/dl is high. A reading of 190 mg/dl or higher is considered very high. Normal LDL less than 100 mg/dl <sup>[2]</sup>.

According to WHO Overweight and obesity are emerging health problems in India. According to national family health survey India -3, thirteen percent of women (15-49 YEARS) and nine percent of men (15-49 years) were overweight or obese in 2005-2006. BMI of less than 18.5 means that a person is underweight. a BMI of between 25 and 29.9 is overweight. BMI over 30 indicates obesity. It had 0.4 million obese men, or 1.3% of the global obese population in 1975, but in 2014, it zoomed into the fifth position with 9.8 million obese men, or 3.7% of the global population. Among women, INDIA has jumped to the third rank with 20 million obese women (5.3% of global population) <sup>[3]</sup>.

Turmeric especially its most active compound curcumin has many scientifically- proven healthy benefits, such as the potential to prevent heart diseases, Alzheimer's and cancer. it's a potent anti-inflammatory antioxidant and may also help improve symptoms of depression and arthritis. "If you want anti-inflammatory affects you need to get 500 to 1,000 milligrams of curcuminoids per day." When using the spice on its own, the common rule of thumb is that there are 200 milligrams of curcumin in one teaspoon of fresh or ground turmeric (though it varies a bit depending on the source and origins).

It contains a yellow-coloured chemical called curcumin, which is often used to colour foods and cosmetics. Turmeric is commonly used for conditions involving pain and inflammation, such as osteoarthritis. It is also used for hay fever, depression, high cholesterol, a type of liver disease, and itching <sup>[4]</sup>.

Black cumin seeds are favourably affecting several parameters related to heart disease risk including lowering total and LDL cholesterol, reducing inflammation, lowering blood pressure, reducing plaque formation. It also reduces blood glucose, as well as diabetic associated complications such as neuropathy. Today, black seed is used for treating digestive tract conditions including gas, colic, diarrhoea, dysentery, constipation, and haemorrhoids. It is also used for respiratory conditions including asthma, allergies, cough, bronchitis, emphysema, flu, swine flu, and congestion. Black cumin seed is wonderful on so many things. Some people like it steeped as a tea, others mix it with royal jelly and spread it on toast, and some people enjoy it sprinkled on melon <sup>[5]</sup>.

Mahdieh Abbasalizad Farhangi *et al.* (2018). The aims of the current study were to evaluate the effect of powdered *Nigella sativa* on serum lipids, glucose homeostasis and anthropometric variables in patients with Hashimoto's thyroiditis. Forty patients with Hashimoto's thyroiditis, aged between 22 and 50 years old, participated in the trial and were randomly allocated into two groups of intervention and control receiving powdered *Nigella sativa* or placebo daily for 8 weeks. Serum lipids, glucose homeostasis, and anthropometric variables were evaluated at baseline and after intervention. Treatment with *Nigella sativa* significantly reduced body weight and body mass index (BMI). Serum concentrations of low density lipoprotein cholesterol (LDL) and triglyceride (TG) also decreased in *Nigella sativa*-treated group after 8 weeks; while serum high density lipoprotein cholesterol (HDL) significantly increased after treatment with *Nigella sativa* ( $P < 0.05$ ). None of these changes had been observed in placebo treated group. Serum Nesfatin-1 concentrations was in inverse relationship with serum triglyceride (TG) ( $r = - 0.31$ ,  $P = 0.04$ ) <sup>[6]</sup>.

HF, *et al.*, (2016) Effectiveness of topical *Nigella sativa* seed oil in the treatment of cyclic mastalgia: a randomized, triple-blind, active, and placebo-controlled clinical trial. *Planta Med.* to study the efficacy of *Nigella sativa* in central obese men on serum free testosterone, body weight, waist circumference, blood sugar, lipid, uric acid, adiponectin, hs-CRP, and side effects in the treatment group compare to control <sup>[7]</sup>.

Amin F, Islam N, *et al.*, (2015) Clinical efficacy of the co-administration of Turmeric and Black seeds (Kalongi) in metabolic syndrome - a double blind randomized controlled trial- Turmeric and Black seeds showed improvement in all parameters of metabolic syndrome, when co-administered at 60% of doses of individual herbs with enhanced efficacy and negligible adverse-effects. The combination of Black seeds and Turmeric can therefore, be recommended with lifestyle modification as a starting point for patients with MetS to halt its future complications and progression. TAK-MetS trial. *Complement Ther Med* <sup>[8]</sup>.

## Methods and materials

The investigator used pre-experimental with one group pre test, post test design. The study was conducted in

community area Athivakkam. 30 Obese women those who fulfill the inclusion criteria of the study were selected by purposive sampling technique. The criteria of sample selection are women who have increased triglycerides (with increased level of 200-499mg\dl), women with increased low density lipo-protein (with increased level of 130-150mg\dl), women with increased BMI (25-29.9), women who are willing to participate in the study, The exclusion criteria for the samples are the women who are not willing, women who have low BMI (below 18.5), women having low triglycerides and low density lipo-protein, women with allergic rashes, women who are having seizures, gastritis, vomiting, and constipation. The period of data collection was conducted for 3 weeks. A formal written permission was obtained from the village leader, Athivakkam, Kanchipuram district to carry out the main study. Informed consent was obtained from the samples. The data was collected one day of the week, the timing of the data collection was day timing. After selection of the study subject, self- introduction was given, the written consent was obtained from each participants of study before starting data collection. Preparation of black cumin seed and turmeric formulation, 1 tablespoon of black cumin powder and 1pinch of turmeric in 1 glass of hot water (130 degree F & 54 degree Celsius) and they have to consume this formulation in early morning with empty stomach for 3 week. After three weeks posttest was done by investigation the triglycerides, LDL, cholesterol levels and compared with the post test.

## Results and discussion

### Section A: Sample characteristics

Shows that regarding age out of 30samples 2(6.6%) samples were come under type age group of 30-35 years, 5(16.6%) were under the age group of 35-40 years, 23(76.6%) samples were under the age group of above 40 years. Regarding type of marriage out of 30 samples 13(43.3%) samples were consanguineous marriage, 17(56.6%) samples were non consanguineous marriage. Regarding occupation out of 30 samples 12(40%) samples were unemployed, 0(0%) samples were government jobs, 3(10%) samples were private job and 15(50%) were agricultural worker. Regarding level of BMI out of 30 sample 18(60%) were 30 and above and 12(40%) were 25.0-29.9.

### Section B: Frequency and percentage distribution of the level of triglyceride AND low density lipoprotein among obese women in athivakkam

The table I reveals the percentage distribution of pretest and posttest level of triglycerides among obese women. The analysis of pretest level of triglycerides, revealed that majority 17(56.6%) had high level of triglyceride, 0 (0%) had normal level of triglyceride and 0 (0%) had low level of triglyceride. Whereas the posttest level of triglyceride, revealed that had 0 (0%) had low level of triglyceride, 14 (46.6%) had normal level of glyceride and 3(10%) had high level of glyceride. The table II reveals the percentage distribution of pretest and posttest level of LDL among obese women. The analysis of pretest level of LDL, revealed that majority 13(43.3%) had high level of LDL, 0(0%) had normal level of LDL and 0(0%) had low level of LDL. Whereas the posttest level of LDL, revealed that had 0(0%) had low level of LDL, 10(33.3%) had normal level of glyceride and 3 (10%) had high level of LDL.

**Table 1:** Frequency and percentage distribution of the level of triglyceride among obese women in athivakkam

Level of Triglyceride	Pretest		Posttest	
	N	%	N	%
High	17	56.6%	3	10%
Normal	0	0%	14	46.6%
Low	0	0%	0	0%

**Table 2:** Frequency and percentage distribution of the level of LDL among obese women in athivakkam

Level of LDL	Pretest		Posttest	
	N	%	N	%
High	13	43.3%	3	10%
Normal	0	0%	10	33.3%
Low	0	0%	0	0%

**Table 5:** Comparative distribution of frequency of BMI in pretest and posttest, N=30

Bmi	Pretest	Posttest
Normal [18.5-24.9]	0	24
Overweight [25.0-29.9]	22	3
Obese [30.0 and Above]	8	3

Table 5 shows that the BMI of the women in pretest and posttest.

**Section C: association between pre-test score and selected demographic variables**

The demographic variable age, religion, type of delivery, marital status, educational status and monthly income had shown not statistically significant association with posttest level of cholesterol at  $p < 0.05$  level among obese women and the other demographic variables had shown statistically significant.

**Conclusion**

The study proves that turmeric and black cumin seed is highly effective in reducing cholesterol level in obese women.

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**Author’s contribution**

All the authors actively participated in the work of the study. All authors read and approved the final manuscript.

**Conflicts of interest**

The authors declare no conflicts of interest.

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