# **Research Article**

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# Effectiveness of a guided risk management strategy on the knowledge and attitude regarding the prevention of metabolic syndrome among adolescents

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## **ABSTRACT**

**Background:** Lifestyle diseases are spreading very rapidly in all over countries. With a view to assess the risk factors for metabolic syndrome and to assess the effectiveness of a guided risk management strategy on knowledge and attitude regarding the prevention of metabolic syndrome among adolescents, a pre experimental one group pre-test post-test design was used on plus two students.

**Method:** They were screened by using a non-invasive risk assessment method and eighty three students were selected as samples by purposive sampling technique. Pre-test was conducted using structured knowledge questionnaire and attitude scale and guided risk management strategy was administered. Post-test was done after seven days.

**Result:** The Results showed that guided risk management strategy was effective in terms of change in knowledge and attitude scores. There was an association between pre-test level of knowledge with education and occupation of mother and association between pre-test level of attitude with occupation of father and mother.

**Conclusion:** The present study showed that 39% of students had the risk factors for metabolic syndrome. The guided risk management strategy was effective in improving the knowledge and attitude of adolescents regarding the prevention of metabolic syndrome.

Key words: Metabolic syndrome, Guided risk management strategy, Adolescents, Obesity, Diabetes mellitus

## INTRODUCTION

Lifestyle diseases are spreading very rapidly in all over countries. Lifestyle diseases are different from other diseases because they are potentially preventable and can be controlled with the changes in diet and lifestyle. Today our eating habits are different from those of a generation ago in all ways. Adolescence is the period of transmission from childhood to adulthood. Indian population consists of adolescents in the age group of 10-19 years, which represent almost 22.8% of the total population. Adolescents are frequently exposed to the rapidly changing values, modernized means of

communication, life style and culture which affects their health. Metabolic syndrome is an emerging health problem like obesity which can be prevented from the early childhood. 2

Non-communicable diseases like obesity, diabetes mellitus, hypertension, coronary artery disease, stroke in adults have been related to the prevalence of risk factors in childhood. Hence, there is a definite need to monitor the prevalence of these risk factors in this age group and plan intervention measures for the same.<sup>3</sup> The national health and nutrition examination surveys in 2002 estimated the prevalence of metabolic syndrome. In the

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United States, 34.5% of adult population had metabolic syndrome. The prevalence of metabolic syndrome in seven european countries was more than 23%. It is estimated that 20-25 % of south asians have developed metabolic syndrome and many more may be prone to it.<sup>4</sup> Previous study suggested that raising awareness about metabolic syndrome based on student's pre-existing knowledge is essential to enhance student's wellness.5 A youth development approach aims to enhance competence, capacities, caring and citizenship among young people. Studies demonstrated that programs and integrate interventions that youth development approaches are effective in protecting the youth against engaging in health risk behaviors. The National Initiative Frame work underscores that the prevention and treatment approaches must go hand-in- hand to effectively promote adolescent health.<sup>6</sup>

#### **METHODS**

A pre-experimental one group pre- test, post-test design was used for this study. All plus two students 212 were screened by using a non- invasive risk assessment method and eighty three students were selected as samples by purposive sampling technique. Pre-test was conducted using structured knowledge questionnaire and attitude scale and guided risk management strategy was administered. Post-test was done after seven days.

### Statistical analysis

Fisher's exact test was used to find out the association between pretest knowledge and attitude scores and demographic variables. P<0.05 was considered as significant.

#### **RESULTS**

In the study population, 39% of students had the risk factors for metabolic syndrome. Regarding the risk factors, majority (61%) of students had more than one risk factor (Figure 1). About the demographic variables, 55% were in 16 years of age, 51% of the students were female and 49% of students were male. 96% of students were living under panchayath area and 94% of students were from nuclear family. Regarding the educational status, 73% of student's fathers and 53% of student's mothers had school education. Regarding the occupation, 83% student's fathers were skilled workers and 69% student's mothers were unemployed. 96% of students had no previous information regarding metabolic syndrome.

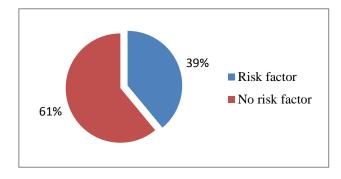


Figure 1: Pie diagram shows distribution of plus two students according to the presence of risk factors of metabolic syndrome.

In the pre test, only 1 % had excellent knowledge and in post test, 60% students had excellent knowledge and none of them had poor knowledge (Table 1). In the pre test attitude scores, only 5% had most favorable attitude and in post-test, 68% of subjects had most favorable attitude.

Table 1: Frequency and percentage distribution of pre-test and post-test knowledge and attitude score of adolescents regarding prevention of metabolic syndrome.

Scores		Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
Knowledge score	Excellent	1	1	50	60
	Good	13	6	26	31
	Average	60	72	7	9
	Poor	9	11		
Attitude score	Most favourable	4	5	56	68
	Favourable	77	93	27	32
	Unfavourable	2	2		
Total		83	100	83	100

The pre-test and post test knowledge and attitude score was calculated to find the effectiveness of intervention. The findings revealed a highly significant gain in knowledge (p = 0.0001) and attitude (p = 0.0001) regarding the prevention of metabolic syndrome.

There was a significant association between pretest level of knowledge with education (p =0.001) and occupation of mother (p =0.031) and there is an association between pretest level of attitude with occupation of father (p =0.027) and mother (p =0.042).

#### **DISCUSSION**

The present study revealed that 39% of adolescents had the presence of risk factors for metabolic syndrome. These findings are consistent with the study conducted in New Delhi, in which the participating students belonged in the age group of 12 to 18 years. It was identified that approximately 20-25% of adolescents have evidence of metabolic syndrome.<sup>3</sup> The study concluded that physical inactivity, fast-food habits, obesity, family history, and hypertension were the main risk factors of metabolic syndrome.<sup>3,7</sup>

In the present study majority (51%) of the students were female. These findings are comparable with the study conducted among adolescents in Haryana, which identified that metabolic syndrome was found more prevalent among females (66%) as compared to males (34%). Decreased play time and lack of exercise may be the reason for increased prevalence of metabolic syndrome among girls during adolescence.<sup>8</sup>

Present study reveals that the mean pre-test knowledge score among adolescents was 8.41 with the standard deviation of 2.576. Mean post test knowledge score was increased to 15.81 with the standard deviation of 2.936. Change in the knowledge score was statistically tested using paired 't' test. The calculated 't' value 19.596 is highly significant at p<0.001, which shows that guided risk management strategy was effective for improving the knowledge regarding metabolic syndrome. These findings are in tune with a study that was conducted to assess the effect of community based intervention on the knowledge of metabolic syndrome .The study reveals that the intervention was effective in improving the knowledge of adults regarding metabolic syndrome. From these study findings it is evident that education based interventions are effective in improving the knowledge level of adolescents.9

The present study showed that there was an association between pre-test level of knowledge with education and occupation of mother and pre-test level of attitude with occupation of parents. These findings are consistent with the study conducted in Korea, found an independent positive association between maternal education and occupational status with knowledge level. Both these

studies reveal the impact of maternal education and occupation over the knowledge level of the students. <sup>10</sup>

A high level of physical activity and diet control reduces the risk of metabolic syndrome. In order to prevent and treat metabolic syndrome, it is recommended that sedentary time is reduced and moderately strenuous physical activity carried out daily for a minimum of 30 minutes. Fat restriction is an important aspect in the prevention of metabolic syndrome. Excess fat in the diet causes obstruction of blood vessels, gradually leads to the development of cardiovascular risk factors and diabetes mellitus.<sup>4</sup>

## **CONCLUSION**

The present study showed that 39% of students had the risk factors for metabolic syndrome. The guided risk management strategy was effective in improving the knowledge and attitude of adolescents regarding the prevention of metabolic syndrome

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## **REFERENCES**

- 1. Life style of adolescents: wealth of future. Available at: http://www.healthypeople. gov/2020/topics-objectives/topic/Adolescent-Health
- 2. Manu R, Krishna RK. Obesity in children and adolescents. Indian J Med Res. 2010;132:598-607.
- 3. Singh AK, Maheshwari A, Nidhi S, Anand C. Lifestyle associated risk factors in adolescents. Indian J Pediatr. 2006;73:901-6.
- The national health and nutrition examination surveys. Global epidemiology to individualized medicine. Clin Pharmacol Therapeutics. 2007; 82:509-13.
- 5. Yahia N, Brown C, Rapley M, Chung M. Assessment of college students' awareness and knowledge about conditions relevant to metabolic syndrome. J Diabetol Metab Syndr. 2014;6:1-15.
- 6. Centers for disease control and prevention. National center for health statistics national health statistics reports. 2009;13:1-5.
- 7. Pandit K. Metabolic syndrome in South Asians. Indian J Endocrinol Metab. 2012;12:44.
- 8. Deepak P. An epidemiological study of metabolic syndrome in a rural area of Ambala district,

- Haryana. J Family Community Med. 2014; 21:130-3
- 9. Dutheil F, Gérard L, Daniel C. Immunity based intervention programme: a randomized controlled trial Nutr J. 2012;11:2478-83-26.
- 10. Swinburn BA, Caterson. Association between knowledge and occupation of parents. Korean J Pub Health Nutr. 2004;7:126-49.

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