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Assessing the Quality of Life, Dietary Patterns and Physical Activity of Weight-Loss Maintenance Subjects in the Population of Hyderabad

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Abstract: ***Obesity has become a pandemic health problem in both developed and developing countries throughout the world. This study is about the trends of prevalence of weight-loss maintenance in the both genders of Hyderabad region by employing online web-based survey and paper-based questionnaire survey and recorded their responses. This cross-sectional study was conducted on subjects between 25-60 years of age. The total number of the subjects who participated in the study was 364, 154 males and 210 females. A self-administered pre-coded questionnaire and weight-loss maintenance scale was used. Demographics, alcohol status, smoking status, dietary intake, quality of life, weight-loss strategies, and behavioral characteristics of weight maintenance were recorded. Data was analyzed on SPSS version 11. Descriptive statistical analysis was performed using Standard Deviation (SD), Mean, and Coefficient of Variation (CV).The study shows that the mean weight was 62.67 yrs and mean BMI was 21.04% .The present study emphasizes the need of awareness in the lifestyle habits of urban population of the Hyderabad for well being of life and to minimize the risks of the diseases that occur due to obesity.***

Keywords: Obesity, BMI, Quality of life, Dietary intake patterns, Weight-loss maintenance strategies

1. Introduction

Obesity poses as the fifth leading risk for global deaths and it is defined as increased in mass of adipose tissue. Although not a direct measure of adiposity, the most widely used method to gauge obesity is the body mass index (BMI), which is equal to weight/ height^2 (kg/m^2) [1]. The World Health Organization has precisely defined obesity as BMI of 30 and above for west and 27.5 and above for the Asian [2]. The BMI describes the body weight relative to height and in adults with the total body fat content. Obesity is therefore more effectively defined by assessing its linkage to morbidity or mortality [3]. Obesity is considered as the core of many diseases such as coronary heart disease, hypertension, type-2 diabetes, cancer (endometrial, breast, and colon), dyslipidemia, stroke, liver disease, gallbladder disease, sleep apnea, respiratory problems (asthma, obstructive sleep apnea), osteoarthritis, and reproductive problems in women[4-5].

Obesity has emerged as a major public health challenge in South Asian countries. India is the third most obese country in the world, with morbid obesity affecting 5% of the India's population [6]. The prevalence of obesity is greater in urban areas, and women are more affected than men. Obesity among children and adolescents too is rising rapidly. The phenomenon in Asians of southern region has characteristic high prevalence of abdominal intensity, with more intra-abdominal and truncal subcutaneous adiposity [7-8]. Lots of Indian population has started relying on processed foods that contain a huge percentage of trans-fat, sugars, and other unhealthy and artificial ingredients [9]. In addition to them alcohol, tobacco and sedentary lifestyle are leading them to silent self-destruction, making one in every five Indian men and women as either obese or over weight. The entrance of modern technology and internet has turned people lazy and stagnant. Lifestyle changes are forcing more and more people to reel under excess body weight and increasing skin-fold thickness [10].

In the world, 2.9 million adults are dying every year on account of being obese or overweight. In addition, 47% of diabetes cases, 24% of ischemic heart diseases and 9-43% of certain instances of cancers are attributable to obesity and overweight[11,12]. The incidence of obesity is 32 per cent in Hyderabad whereas in Chennai and Bangalore it is 39 and 46 per cent respectively. Studies show that 15 to 20 per cent of children are overweight and 30 per cent of them are at risk of falling in the obese category. The incidence of childhood obesity is 21.8 per cent in boys and 17.4 per cent in girls. The reasons are lack of physical activity, electronic entertainment, junk foods and an idle lifestyle [13]. The problem is also increasing due to dependence on transport systems. Too much sitting is also a reason for abdominal obesity. This is found to be one of the major reasons for teenage obesity as students are most of the time sitting at the table and chair either studying or surfing the Internet.
As, India is currently witnessing rising numbers of people with increased weight which leads to significant health risks, people are pondering on health. Awareness is the only way to educate the people about obesity. Social media is coming up with many consultation programmes with doctors through telephone for creating awareness in the people. Day-by-day many cosmetic clinics are emerging and claiming weight reduction techniques like liposuction, bariatric surgery etc [14]. The Nation and people are also showing interest and spending their time for yoga, zumba fitness and cycling. Enlightenment is growing in every individual that "To keep the body in good health is a duty…otherwise we shall not be able to keep our mind strong and clear."

2. Materials and Methods

A cross sectional study was conducted by employing online survey design and paper based questionnaire survey. The paper based survey was conducted in a tertiary care hospital of urban south India. It is a 300 bedded health care with super speciality blocks for Pediatrics, General medicine, Gynecology, Neurology, Surgery, and Nephrology. Survey of 364 cases consisting of online subjects, inpatients and outpatients was accomplished over a period of 18 months i.e., one and half a year (from May, 2015 to October, 2016).Once the consultation was over with the physician, patients were interviewed based on the study objectives after receiving their verbal consents to determine the demographics of patients details. The details were enrolled and documented in the structured patient's profile form. Prescriptions were copied and evaluated as per the World Health Organization (WHO) guidelines. The web-based subjects were also asked to fill the online consent form followed by the questionnaire.

Questionnaire was prepared with a view of collecting data from the urban population about level of Physical activity, Dietary intake Habits, Life style etc. Questionnaires were also distributed to a population selected by visiting Gyms, Fitness centers, Health management centers, House of the person's, Hospitals, etc. All subjects were requested to sign the informed consent in order to confirm their willingness to participate in the study. Data was collected from adults (Age 25-60 Yrs) as per protocol requirement and factors affecting the general health and wellbeing were collected with the aid of the distributed questionnaire to evaluate the study variables namely dietary pattern, Life style, Physical activity and weight-loss strategies.

Participants were asked to provide basic demographic information (age, gender, education level and marital status) and details about weight history (current weight and current height, maximum adult weight, duration of maintenance of required minimum 12 kg weight loss). Using this information, current and maximum body mass index (BMI in kg/m^2) was calculated. In addition to this, Alcohol status; Smoking status; Dietary intake; Effects, Concerns and Pleasures of weight maintenance, Behavioral characteristics and Weight-Loss strategies were included in both the web-based and paper-based questionnaires.

3. Results and Discussion

3.1 Demographics of the subjects

A total of 364 subjects were recorded of which 154 (42.3%) were males and 210 (57.7%) were females. According to the study results, mean age was 38.13 yrs, mean height was 169.75 cm, mean weight was 62.67 kgs and mean BMI was 21.04 as shown in the Table-1. Of the total subjects, 145 (39.8 %) have a habit of drinking alcohol with moderate level of 106 (29.1%), heavy level of 23 (6.3%), binge level of 16 (4.4%). Tobacco burning subjects were 126 (34.6%) of which current smokers were 34 (9.3%), past smokers were 66 (18.1%) and passive smokers were 26 (7.1%) as in Table 3.

Table 1: Summary of Demographics

Sex	*N (364)*	*%*
Males	154	42.3
Females	210	57.7
Age	(a) Mean (yrs)	38.13
	(b) SD (yrs)	7.27
	(c) CV (%)	23.22
Height	(a) Mean (yrs)	169.75
	(b) SD (cm)	9.39
	(c) CV (%)	6.57
Weight	(a) Mean (kgs)	62.67
	(b) SD (Kgs)	7.92
	(c) CV (%)	9.72
BMI	(a) Mean	21.04
	(b) SD	0.97
	(c) CV (%)	4.28

Table 2: Distribution of Alcohol Status

Response	*N*		*%*	
Does the subject drink Alcohol?	**No**	**Yes**	**No**	**Yes**
	219	145	60.2	39.8
Drinking level	**N**		**%**	
Moderate	106		29.1	
Heavy	23		6.3	
Binge	16		4.4	

3.2 Quality of life Index

The quality of life status questionnaire (Table 4) was prepared with four criteria and their responses were noted such as (1) How much sleep do you have in a day? Including (a) Less than 6 hrs with 33(9.15%), (b) 6-8hrs of sleep with 194 (53.2%), (c) 8hrs or more with 89 (24.6%) and (d) Hardly get sleep with 48 (13.1%). (2) Time spent on electronic devices in a week including (a) 1hr or less with 176 (48.4%), (b) 2-3 hrs with 79 (21.7%), (c) 3-4hrs with 46 (12.6%) and (d) 4hrs or more with 63 (17.3%). (3) How often do you exercise in a week? Including (a) Every day with 149 (40.9%), (b) Once or thrice with 85 (23.3%), (c) Thrice or more with 106 (29.2%) and (d) Rarely/ never with 24(6.6%). (4) What makes you physically active? Including (a) Motivation to exercise from family with 82 (22.5%), (b) Company from friends and colleagues with 77(21.2%), (c) Confidence/ self-image with 56 (15.4%), (d) Health consciousness with 149 (40.9%).

Table 3: Distribution of Tobacco Status

S. No	*RESPONSE*	*N*		*%*	
	Does the subject burn tobacco?	**No**	**Yes**	**No**	**Yes**
		238	126	65.4	34.6
1.	**Tobacco smoking status**	**N**		**%**	
(a)	Current smoker	34		9.3	
(b)	Past smoker	66		18.1	
(c)	Passive smoking (family & friends)	26		7.1	
2.	**Subject burning tobacco in the form of**	**N**		**%**	
(a)	Smoke	98		26.9	
(b)	Chewable	21		5.8	
(c)	Both	07		1.9	

3.3 Dietary Intake

Dietary intake was assessed with the self-administered Questionnaire (Table 5) that asks about normal intake of

various foods eaten comprising of six criteria and their responses were coded. (1) Breakfast intake including (a) Always with 241 (66.2%), (b) Sometimes with 86 (23.6%), (c) Rarely with 28(7.7%), (d) Never with 9(2.5%). (2) Subjects usually at work including (a) Lunch from home with 208 (57.1%), (b) Meal from canteen with 128 (35.2%), (c) Buy fast foods/snacks with 21(5.8%) and (d) Skip lunch with 7 (1.9%). (3) How often do you have fast food? Including (a) Every day with 19 (5.3%), (b) Once/ more times in a week with 38 (10.4%), (c) Few times in a month with 64 (17.6%) and (d) Never/rarely with 243 (66.7%). (4) Subjects usually snack on including (a) Packaged foods with 127 (34.8%), (b) Baked foods with 62 (17.1%), (c) Sweets with 71 (19.5%) and (d) Other snacks with 104 (28.6%). (5) How often do you have fruits and vegetables? Including (a) Every day with 208 (57.1%), (b) Once or more times in a week with 79 (21.7%), (c) Few times a month with 31 (8.6%) and (d) Rarely/never with 46 (12.6%). (6) How often do you eat if you are not really hungry? Including (a) Stressed with 34 (9.45), (b) Lonely/depressed with 57 (15.6%), (c) After fast with 32 (8.8%), (d) Never with 241(66.2%).

Table 4: Details of Quality of Life

S. No	*Criteria*		*Response*	**N**	**%**
1.	How much sleep do you have in a day?	(a)	Less than 6 hrs	33	9.1
		(b)	6 -8 hrs	194	53.2
		(c)	8 hrs or more	89	24.6
		(d)	I hardly get sleep	48	13.1
2.	Time spent on electronic devices (TV/Computer/ video games) in a week?	(a)	1 hr or less	176	48.4
		(b)	2 -3 hrs	79	21.7
		(c)	3 - 4 hrs	46	12.6
		(d)	4 hrs or more	63	17.3
3.	How often do you exercise in a week?	(a)	Every day	149	40.9
		(b)	Once or twice	85	23.3
		(c)	Thrice or more	106	29.2
		(d)	Rarely/ never	24	6.6
4.	What makes you physically active?	(a)	motivation from family	82	22.5
		(b)	company from friends	77	21.2
		(c)	Confidence / self – image	56	15.4
		(d)	Health consciousness	149	40.9

3.4 Weight-Loss Maintenance Strategies

Participants were asked to indicate whether they had used a specific strategy to maintain or lose weight during the past year. Participants were asked to indicate on a scale of 1-5 (where 1 is extremely easy and 3 is extremely hard) including (A) How difficult it is to maintain their weight and to indicate on a scale of 1-5 (where 1 is not important at all and 5 is extremely important); (B) How important it is to them to follow their exercise routine and follow their diet routine.

Table 5: Details of Dietary Intake Patterns

S. No	*Criteria*		*Response*	*N*	*%*
1.	Breakfast intake	(a)	Always	241	66.2
		(b)	Sometimes	86	23.6
		(c)	Rarely	28	7.7
		(d)	Never	9	2.5
2.	Usually at work	(a)	Lunch from home	208	57.1
		(b)	Meal from canteen	128	35.2
		(c)	Buy fast food/snacks	21	5.8
		(d)	Skip lunch	7	1.9
3.	How often do you have fast food?	(a)	Every day	19	5.3
		(b)	Once or more times a week	38	10.4
		(c)	Few times a month	64	17.6
		(d)	Never/rarely	243	66.7
4.	Subjects usually snack on?	(a)	Packaged foods like chips, salty snacks etc.	127	34.8
		(b)	Baked foods like, cakes, donuts etc	62	17.1
		(c)	Snacks like mirchi, dosa, vada etc.	71	19.5
		(d)	Sweets, ice-creams, chocolates etc.	104	28.6
5.	How often do you have fruits and vegetables?	(a)	Every day	208	57.1
		(b)	One/ more times in a week	79	21.7
		(c)	Few times a month	31	8.6
		(d)	Rarely/never	46	12.6
6.	How often do you eat even if you are not really hungry?	(a)	Stressed	34	9.4
		(b)	Lonely/depressed	57	15.6
		(c)	After fast	32	8.8
		(d)	Never	241	66.2

3.5 Efforts, concerns and pleasures of weight maintenance

The participants were asked to fill about the efforts, concerns and pleasures derived from the weight maintenance questionnaire including (1) Efforts for (a) Exercise with 94 (25.8%), (b) Diet with 149 (40.9%) and (c) Maintaining weight with 121 (33.3%). (2) Concerned for (a) following diet with 87 (23.9%), (b) Exercise regimen with 108 (29.7%) and (c) Maintaining weight with 169 (46.4%). (3) Pleasures derived from including (a) Low fat meal with 32(8.8%), (b) High fat meal with 63 (17.3%), (c) Avoiding sugars/sweets with 74 (20.3%), (d) Exercise with 53 (14.6%), (e) Sedentary activities with 45 (12.45) and (f) Maintaining weight with 97 (26.6%) subjects as shown in the Table 7.

Table 6: Weight-Loss Maintenance Strategies

S. No	*Criteria*	*N*	*%*
1.	Diet prescribed by a Dietician/Physician	27	7.4
2.	By following commercial programmes	94	25.8
3.	By diet replacements	76	20.9
4.	By prescribed medication	23	6.3
5	By using over-the counter medications	14	3.8
6.	By following liquid diet	41	11.3
7.	By preparing self regimen	53	14.6
8.	By family support	36	9.9

3.6 Weight Maintenance Behaviors

Participants were asked about weight-loss maintenance related behaviors at baseline and one year follow-up. The questionnaire (Table 8) included three criteria and their responses were noted. (1) Self-assessment including (a) Reducing hrs of TV per week with 46(12.6%), (b) Weigh at least once a week with 137 (37.6%), (c) Concern about dieting with 108 (29.7%) and (d) Avoiding outside junk and fast food with 73 (20.1%). (2) Food habits including (a) Avoid fatty foods with 134 (36.8%), (b) Reducing meat consumption with 79(21.7%), (c) Avoiding fried/oily recipes with 57(15.75), (d) Substituting low fat for high fat with 94 (25.8%). (3) Leisure time exercise including (a) No. of mild activities per week with 46 (12.6%), (b) No. of moderate

activities per week with 108 (29.7%), (c) No. of strenuous activities per week with 83(22.8%) and (d) No. of sweat activities/ week with 127(34.9%) are noticed as weight maintenance behaviors in the study population.

Table 7: Efforts, Concerns and pleasures of Weight-Maintenance Strategies

1.	**Effort for**	**N**	**%**
(a)	Exercise	94	25.8
(b)	Diet	149	40.9
(c)	Maintaining weight	121	33.3
2.	**Concerned for**	**N**	**%**
(a)	Following diet	87	23.9
(b)	Exercise regimen	108	29.7
(c)	Maintaining weight	169	46.4
3.	**Pleasure derived from**	**N**	**%**
(a)	Low fat meal	32	8.8
(b)	High fat meal	63	17.3
(c)	Avoiding sugars/sweets	74	20.3
(d)	Exercise	53	14.6
(e)	Sedentary activities	45	12.4
(f)	Maintaining weight	97	26.6

Table 8: Behavioral Characteristics of Weight-Loss Maintenance

S.NO	**Self-Assessment**	**N**	**%**
1.	Reducing hours of TV per week	46	12.6
(a)	Weigh at least once a week	137	37.6
(b)	Concern about dieting	108	29.7
(c)	Avoiding outside junk & fast food	73	20.1
2.	**Food Habits**	**N**	**%**
(a)	Avoid fatty foods	134	36.8
(b)	Reducing fried/oily recipes	79	21.7
(c)	Reducing meat consumption	57	15.7
(d)	Substituting low fat for high fat	94	25.8
3.	**Leisure Time Exercise / Week**	**N**	**%**
(a)	No. of mild activities/week	46	12.6
(b)	No. of moderate activities/week	108	29.7
(c)	No. of strenuous activities/week	83	22.8
(d)	No. of sweat episodes/week	127	34.9

4. Conclusion

Data was collected from Adults (Aged 25-60 yrs) and factors affecting their general health and well-being (Dietary pattern, quality of life and physical activity) have been collected with the aid of questionnaires by means of both web-based and paper-based survey to evaluate study variables like weight-loss maintenance strategies, dietary intake, quality of life and behavioral characteristics of weight maintenance. By evaluating statistical analysis of the information data obtained, it was found that a large percentage of persons are changing their lifestyle by cutting down alcohol intake, tobacco intake; Avoiding outside junk and the fast food and consuming fresh fruits and vegetables; Substituting low fat with high fat foods and checking weight at least a week; Maintaining regimen of regular exercise and having sleep for required hours; Spending leisure time for quality activities rather than wasting time with surfing internet and TV or Video games. From all the parameters recorded, evaluation indicates the improvements in the healthy lifestyles of Hyderabad as existing in the countries of the developing world.

5. Future Scope

This survey was conducted on the Hyderabad population only but it can be expanded to all over India level. It emphasizes the pressing need of early awakening of planned routine with regular exercise. Proper attention to be paid to minimize the coexisting risks of obesity and the harm it can cause to each individual. It is also required to get the general population aware of the importance of sleep, physical activity and proper healthy and balanced diet, in order to lead a healthy, long and stress free life. The findings of the study will definitely have far-reaching implications for Health care routine in the country.

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