

Quality of Life of Overweight and Obese Patients

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Abstract: The prevalence of overweight and obesity has increased significantly in recent years. This is as a result of changes in dietary habits and lack of physical activity. Quality of life which measures the social, physical and psychological well-being of a person can be affected by a person's weight. The quality of life of an individual is important in directing medical treatment and motivating patients' behavior change and counseling adherence. The aim of the study was to assess the quality of life of overweight and obese patients. A cross-sectional study design was used. One hundred and seven obese and overweight patients with or without any other chronic diseases who reported to the diet therapy departments of two hospitals were recruited. The Short Form -36 which is a standard questionnaire for assessing quality of life was used to obtain information from the patients. Data was analysed using SPSS version 20.0. Data was summarized as means, standard deviations, frequencies, percentages and presented as tables and graphs. T-tests and correlations were used to draw relationships between variables. Results indicated that, 39% of the respondents had impaired physical quality of life as compared to 12% who were impaired mentally. Overall, 81% of the respondents had good quality of life. Majority of the respondents had role physical limitations. Comparing mental and physical health, greater percentage was impaired physically than mentally. Nevertheless, majority of the respondents had good quality of life.

Keywords: Mental health, obese, overweight, physical health, quality of life, SF-36

INTRODUCTION

The prevalence of overweight and obesity has increased over the years mainly due to the change in dietary habits and lack of physical activity. In many countries, overweight and obesity still remain a significant public health concern (Riener *et al.*, 2006).

Excess bodyweight or accumulation of excess body fat occurs when there is an imbalance between energy intake and expenditure such that excess energy is stored in fat cells, which enlarge or increase in number (Nelms *et al.*, 2010). In 1947, the World Health Organization defined health as both the absence of disease and infirmity and the presence of physical, mental and social wellbeing (WHO, 1947). Therefore for a person to be regarded as healthy, his/her social wellbeing, mental well-being and physical well-being need to be taken into consideration.

A Health-related quality of life refers to well-being in the physical, psychological and social domains which can be assessed by measuring an individual's subjective perception of health. Quality-of-life assessments can be used to measure and compare the effectiveness of different treatments used to treat obesity and to evaluate the impact of treatment on how patients feel and function in their everyday lives (Kolotkin *et al.*, 2001a).

Obesity and overweight have serious effects on the overall health and well-being of an individual. Some of the problems known to be associated with overweight and obesity are hypertension, coronary arteriosclerosis, high cholesterol, joint problems, stroke, type 2 diabetes and some types of cancers (Holm *et al.*, 2001; Kolotkin *et al.*, 2001b).

Obesity and overweight also affect the psychological well-being of a person. People with excess body weight tend to have poor self-concept, negative self-evaluation of themselves and lower self-image (Faith *et al.*, 2003).

Approximately 20 to 30% of obese individuals who seek weight loss report problems with binge eating (Spitzer *et al.*, 1992; Barofsky *et al.*, 1998) which is often associated with a depressed mood or related complications (Spitzer *et al.*, 1992; Wadden and Stunkard, 1993). Socially, obese and overweight individuals frequently face issues of discrimination and prejudice which further perpetuate negative economic and social consequences (Kolotkin *et al.*, 2001b).

Studies have reported the adverse effects of obesity and overweight on quality of life (Borowiak and Kostka, 2004; Kushner and Foster, 2000). Both physical and psychosocial functioning has been shown

Table 1: Description of the SF-36 questionnaire

Domains	Scope of measurement
Physical health	
Physical functioning	Measures one's ability to carry out normal everyday activities such as walking, bathing, engaging in strenuous and moderate activities and many more.
Role physical limitation	Assesses whether the individual has cut down on work or other activities because of physical health.
Body pain	Evaluates the level of body pain and how it interferes with work or other activities.
Mental health	
Emotional health	Assesses whether an individual is sad or happy and the degree of sadness or happiness.
Role emotional limitation	Finds out whether an individual has cut down on work or other activities because of emotional health.
Vitality	Finds out if one feels full of life and energetic.
Social functioning	Finds out whether an individual engages in social activities without any limitation.
General health	Measures the health perception of an individual and how positive or negative the person is towards his/her health.

to be negatively affected by excess weight and greater impairments have been associated with greater degrees of obesity (Higgs *et al.*, 1997). An individual's subjective perception of his/her health is important in directing medical treatment and motivating patients' behavior change and counseling adherence. Therefore there is the need to know the quality of life of obese and overweight patients to aide health professionals in giving adequate care to their patients. The aim of this study was to assess the quality of life of overweight and obese patients at the diet therapy units of two hospitals in Accra.

MATERIALS AND METHODS

Study design, population and setting: A cross sectional study design was employed. It was conducted in two hospitals in the Greater Accra Region of Ghana. The two hospitals are both major referral centers for smaller medical facilities in the region. The study population included obese and overweight patients receiving medical nutrition therapy at the diet therapy units of the two hospitals. The sample conveniently recruited (107) obese and overweight patients who reported for dietary counseling at the hospitals and agreed and consented to participate in the study. Those who did not consent to participate were excluded from the study. A convenience sampling method was used to recruit subjects for the study.

Data collection and instrument:

Participant information: The Short-Form (SF-36) questionnaire was used to obtain information from patients. It is a standardized self-evaluation instrument consisting of 36 items. These questions assess the quality of life of the patients during the previous 4 weeks. The questionnaire consists of eight domains: physical functioning, bodily pain, role-physical limitation, general health, social functioning, vitality, role emotional limitation and general mental health domains. These domains were further grouped under two main categories namely Mental and Physical health. An answer to questions under each of the domains attracted a score. A total score below 50% implied impaired or reduced quality of life where as a

score above 50% signified good quality of life. Table 1 shows what each of the domains of the SF-36 domain addresses (Ware *et al.*, 1993). Information regarding their demography was also obtained using a semi-structured/questionnaire.

Anthropometry: Participants' heights and weights were taken using standard procedures (National Health and Nutrition Examination Survey, 2004). The body mass index (BMI) were then computed using the formula weight (kg)/height (m²). The BMI were categorized according to WHO classifications as follows; obese class I: 30-34.99 kg/m², obese class II: 35-39.99 kg/m² and obese class III ≥ 40.00 kg/m².

Data analysis: All data collected was computed and analyzed with the SPSS version 20.0. Quantitative variables such as age, BMI, weight and height were summarized as means and standard deviation. Qualitative variables such as gender were summarized as frequencies and percentages. Independent T-test and one way ANOVA were used to find the differences between continuous variables. Simple linear regression was used to clarify the relationship between variables. The level of significance was set at $p \leq 0.05$.

Ethical considerations: Ethical clearance was sought from the Ethics and Protocol Review Committee of the School of Allied Health Sciences, University of Ghana. Consent was sought and granted by the two hospitals where the study was conducted. The purpose and protocol of the study was also explained to participants and a written consent was obtained to ensure voluntary participation. Confidentiality of all information received from study participants was ensured during collection, storage and publication of the research material.

RESULTS

Demographic information of respondents: Table 2 shows the demographic characteristics of the respondents. Majority (81.3%) of the respondents were females and the remaining 20 (18.7%) of them were males. The average age of all the participants was 53.68

Table 2: Demographic characteristics of respondents (N = 107)

Variable	Frequency	Percentage (%)
Gender		
Male	20	18.7
Female	87	81.3
Marital status		
Single	16	15.0
Married	67	62.6
Divorced	10	9.3
Separated	3	2.8
Widowed	11	10.3
Educational level		
None	2	1.9
Primary	8	7.5
JHS	39	36.4
SHS	28	26.2
Tertiary	30	28.0
Total	107	100
Mean Age (\pm SD)	53.68 \pm 11.7	
Mean BMI (\pm SD)	33.08 \pm 5.0	

Table 3: BMI classification of respondents (N = 107)

Variable	Frequency	Percentage (%)
Overweight	33	30.8
Obese class I	43	40.2
Obese class II	21	19.6
Obese class III	10	9.3
Total	107	100

Table 4: Chronic illness status of respondents (N = 107)

Variable	Frequency	Percentage (%)
Respondents with no other chronic disease (s).	13	12.1
Respondents with other chronic disease (s)		
One other chronic disease	50	46.7
Two other chronic diseases	32	29.9
Three other chronic diseases	12	11.2
Chronic illnesses reported		
Diabetes	64	59.8
Hypertension	39	36.4
Dyslipidemia	44	41.1

Table 5: Physical and Mental well-being scores of respondents based on SF-36 questionnaire (N = 107)

Category	Scored below 50%	Scored above 50%
Physical health	42 (39.3%)	65 (60.7%)
Mental health	13 (12%)	94 (88%)
Overall quality of life score	18 (19.3%)	89 (80.7%)

Table 6: Mean Quality of life scores for all respondents based on SF-36 questionnaire. (N = 107)

Quality of life domains	Scores \pm SD	Percentage of respondents who scored below 50%
Physical functioning	74.58 \pm 21.1	16.8
Role physical	47.66 \pm 46.8	50.5
Emotional health	70.95 \pm 14.3	4.7
Role emotional	76.64 \pm 41.0	23.4
Social wellbeing	83.06 \pm 29.2	6.5
Body pain	57.83 \pm 29.2	36.4
Vitality	58.64 \pm 17.9	30.8
General health	60.19 \pm 14.9	16.8

SD = Standard deviation

years. Sixty two percent were married and close to 98% had received some formal education.

BMI classification of respondents: The BMI classification of the respondents is shown in Table 3.

Respondents were grouped into four classes according to their Body Mass Index. The classes were overweight, obese class 1, obese class 2 and obese class 3. About 31% of the respondents were overweight and the remainder obese. Table 3 shows the details of BMI classification of the respondents.

Chronic illness status of respondents: Table 4 shows the chronic illness status of the respondents. The majority (87.9%) of the respondents reported having other chronic illness besides overweight and obesity. The greater number of the respondents had only one other chronic illness though a few had two or three other chronic diseases. Chronic illnesses reported included Diabetes, Dyslipidemia and Hypertension.

Physical and mental health of respondents: The physical and mental well being of the respondents is presented in Table 5. About 39% of respondents had reduced physical well-being and 12% had reduced mental wellbeing.

Quality of life (SF-36 scores) of all respondents: Table 6 presents the quality of life scores of all the respondents. The highest score was obtained for the social wellbeing domain whilst the lowest score was for Role physical. In all, respondents scored above 50% in all eight domains except the Role physical domain where the mean score was 42.66%.

Quality of life scores for obese and overweight respondents: Table 7 compares the quality of life of overweight and obese respondents. The mean scores obtained for all the eight domains of quality of life are shown on the table. Overweight respondents scored 50% and above in all the eight domains. The highest score was obtained for the role emotional domain whilst the lowest score was for body pain.

Obese respondents on the other hand scored 43.58% for the role physical domain. Their highest score (83.28%) was for social wellbeing. Significant differences were observed between the two groups with respect to the physical functioning and role emotional domains.

Quality of life scores among obese sub-groups: Quality of life scores were compared between the obese sub groups. From Table 8, respondents in the obese class I scored above 50% in all the domains of quality of life except the role physical functioning domain. Respondents in obese class II group scored greater than 50% in all domains of quality of life while respondents in obese class III group scored lower than 50% in three of the eight domains namely Role physical limitation (17.5%), Body pain (45%) and Vitality (44%). ANOVA revealed statistical differences between the three groups in the domains of physical functioning and vitality.

Table 7: Mean Quality of life (SF 36) scores for overweight and obese respondents (N = 107)

Quality of life domains N = 33	Overweight group (scores %) ±S.D. N = 74	Obese group (scores %) ±S.D.	p-value
Physical functioning	83.03 ± 11.6	70.81 ± 23.2	0.000*
Role physical	56.82 ± 47.7	43.58 ± 46.1	0.618
Emotional	70.55 ± 13.9	71.14 ± 14.5	0.452
Role emotional	86.87 ± 33.3	72.07 ± 43.5	0.000*
Social wellbeing	82.58 ± 21.4	83.28 ± 23.5	0.654
Body pain	59.09 ± 28.3	57.26 ± 29.8	0.545
Vitality	60.91 ± 16.1	57.64 ± 18.7	0.387
General health	61.97 ± 15.4	59.39 ± 14.7	0.525

SD = Standard Deviation; Significant difference at p<0.05; T- Test

Table 8: Mean Quality of life scores for respondents in obese class I, II and III groups. (N = 74)

QOL dimensions	Class 1 (Mean±SD)	Class 2 (Mean±SD)	Class 3 (Mean±SD)	P-value
Physical Functioning	78.60± 20.30	63.10± 25.02	53.50 ±17.33	0.001*
Role physical	46.51± 46.80	50.00 ±47.43	17.50 ±33.44	0.151
Emotional health	72.09± 16.34	69.90± 12.37	69.60 ±10.86	0.804
Role emotional health	68.22± 44.22	76.19± 43.64	80.00± 42.16	0.657
Social wellbeing	88.37± 21.20	75.00 ±29.05	78.75± 14.49	0.081
Body Pain	58.14±30.00	61.31± 32.10	45.00 ±22.20	0.351
Vitality	61.63 ±19.26	55.95±18.07	44.00± 9.66	0.022*
General Health	60.58± 13.77	59.76± 19.01	53.50± 4.12	0.391

Significant difference at p<0.05; One way ANOVA suicide

Table 9: Mean Quality of life (SF 36) scores for overweight patients with and with no chronic illness (N = 33)

Quality of life domains	With chronic illness (mean±sd) n = 31	With no chronic illness (mean±sd) n = 2	p-value
Physical Functioning	83.06± 11.1	82.50± 24.7	0.073
Role Physical	54.03± 47.9	100.0	0.000*
Emotional Health	69.29 ±13.2	90.00 ±14.1	0.690
Role Emotional	86.02±34.2	100.0	0.192
Social Wellbeing	81.45±21.6	100.0	0.041*
Body Pain	57.66±28.3	81.25±26.5	0.608
Vitality	60.00±16.2	75±7.1	0.212
General Health	60.65±14.9	82.5±3.5	0.139

Significant difference at p<0.05; T -Test

Table 10: Mean Quality of life (SF 36) scores of obese respondents with and without chronic illness (N = 74)

Quality of life domains	With chronic illness (mean±S.D.) (N = 63)	With no chronic illness (mean±S.D.) (n = 11)	p-value
Physical Functioning	71.27±24.1	68.18±18.2	0.237
Role Physical	42.86±46.8	47.72±44.0	0.090
Emotional Health	70.29±14.9	76.00 ±12.0	0.456
Role Emotional	70.37±44.03	81.82±40.5	0.138
Social Wellbeing	82.74±24.6	86.36±16.3	0.115
Body Pain	61.11±29.4	35.22±22.2	0.037*
Vitality	58.41±18.5	53.18±20.2	0.873
General Health	59.05 ±14.4	61.36±16.7	0.563

Significant difference at p<0.05; T- test

Table 11: Impact of number of chronic illness on quality of life of respondents (N = 107)

QOL domains	R ²	Standardized Coefficient beta	p-value
Physical functioning	0.037	-0.193	0.046*
Role physical	0.016	-0.128	0.190
Emotional health	0.001	0.364	0.717
Role emotional	0.000	-0.018	0.855
Social wellbeing	0.001	-0.026	0.787
Body pain	0.039	-0.198	0.041*
Vitality	0.015	-0.123	0.207
General health	0.000	-0.001	0.989

Comparison of quality of life of overweight respondents with and without chronic illness:

Comparison between the quality of life of overweight respondents with chronic illness and without chronic illness are presented in Table 9. Both groups scored not less than 50% in all eight domains of quality of life. There was significant differences between the two groups in the role physical domain and social well being domain.

Comparison of quality of life of obese respondents with and without chronic illness:

The quality of life of obese respondents with chronic illness was compared to obese respondents without other chronic illness (Table 10). Obese respondents with chronic illness scored above 50% in all domains except role physical domain where they scored 42.86%. Those without chronic illness scored above 50% in six of the eight domains. They scored 47.2 and 35.2% in Role physical functioning and Body pain, respectively.

Contribution of the presence of chronic illness to the quality of life of respondents:

Table 11 shows the relationship between number of chronic illnesses and quality of life of respondents. Linear regression analysis revealed that the impact of the number of chronic illnesses on Body pain ($\beta = -0.198$, $p = 0.041$) and physical functioning of respondents ($\beta = -0.193$, $p = 0.046$) was statistically significant. The negative standardized coefficients signify that the greater the

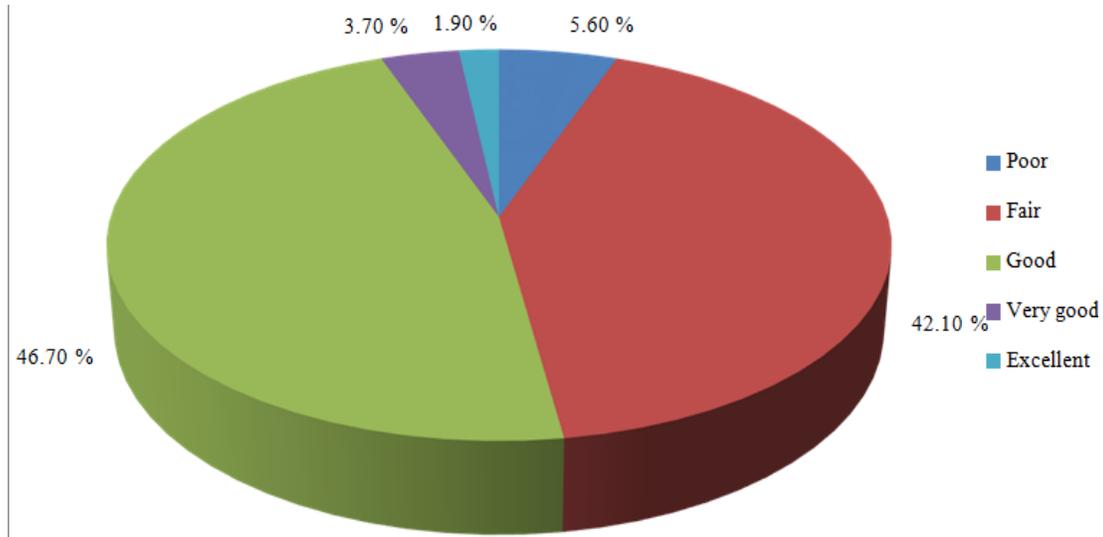


Fig. 1: General health perception of respondents (N = 107)

number of chronic diseases, the lower the physical functioning and body pain scores.

General health perception of respondents: Figure 1 shows perception of general health by all one hundred and seven respondents (107). About 47% of the respondents perceived their general health to be good.

DISCUSSION

Demographic information of respondents: Obesity is an independent risk factor for chronic illnesses such as diabetes, coronary heart disease, hypertension and many more (Quesenberry *et al.*, 1998). Majority (87%) of the One hundred and seven overweight and obese patients who participated in this study had one or more chronic illnesses aside being overweight or obese. Chronic diseases reported were diabetes, hypertension and hypercholesterolemia. This study has thus confirmed the high prevalence of chronic illness in obese and overweight individuals.

Biritwum *et al.* (2005) mentioned that in Ghana, the prevalence of obesity is higher among women as compared to men. This suggests that obesity and overweight are more associated with females than males in Ghana. The World Health Organization estimates that at least 400 million adults are obese with higher rates among women than men (WHO, 2000).

In this study, the percentage of male respondents (18.7%) was lower than female respondents (81.3%) and therefore is consistent with the findings of Biritwum *et al.* (2005). The gender imbalance could also be attributed to females being more concerned over their health and therefore seeking medical attention frequently than males and also because more females are presumed to be overweight and obese (Biritwum *et al.*, 2005).

With the average age being 53.68 years, most respondents were middle aged men and women. This shows that risk of excess body weight is increased in middle age. This is comparable to a study by Doll *et al.* (2000) where there was an over-representation of older ones with about 42% being between the ages of 45 to 64 years.

Mental health of respondents: Short-form 36 questionnaire is well known to provide a valid and reliable measure of health status including physical and mental health (Mchorney *et al.*, 1994).

A study by Le Pen *et al.* (1998) among French obese subjects concluded that obesity was associated with impaired physical but not mental wellbeing as assessed using both a general and obesity specific measure. Furthermore, epidemiological and clinical studies have not endorsed the idea that overweight individuals are as a group are more emotionally disturbed than normal weight individuals (Wadden and Stunkard, 1997). The conclusion drawn was consistent with this study where approximately (88%) of the respondents reported good overall mental health with scores above 50% in that category. Respondents also had an average score of above 50% in all the mental health domains. The scores obtained indicate that participants in this study felt full of energy, peaceful, happy and calm. They also performed normal social activities without any hindrance and also did not encounter problems with work or other daily activities as a result of emotional problems. Therefore generally, respondents had good mental health. Perception of obesity in African countries including Ghana also might have influenced the mental health score of respondents. In an environment where being overweight or obese is associated with beauty and wealth, many obese and

overweight individuals feel peaceful and happy and are able to perform social activities with confidence.

Comparing obese and overweight respondents, overweight respondents scored significantly higher in the role emotional domain than obese respondents. Among obese sub groups, scores of vitality decreased with increasing severity of obesity. This is consistent with the study by Higgs *et al.* (1997) where greater psychosocial functioning was associated with greater impairments of obesity.

Physical health of respondents: Physical health measures the absence or presence of illnesses. It also measures physical functioning status (Willson and Cleary, 1995). The impact of obesity on physical health is well documented and it is generally accepted that obesity increases morbidity risk and decreases life expectancy (Pi-Sunyer, 1995). Respondents in this study had a mean score of less than 50% (47.66%) in the role physical domain. More than half of respondents (50.55%) reported role physical limitation. This means respondents had problems with work or other daily activities as a result of physical impairment. Also in this study, 39% of respondents were impaired physically as compared to 12% who were impaired mentally. This is comparable to a study by Doll *et al.* (2000) which found out that deterioration in health status of obese subjects in England was more evident in the physical than in the emotional dimensions. It was reported that in the social and emotional dimensions, obese and overweight subjects scored no lower than subjects who were underweight. This is similar to results of other studies that have suggested that the burden of obesity is primarily perceived as physical in nature (Le Pen *et al.*, 1998).

Health perception by respondents: It has been reported that body weight affects self ratings of health and obesity is associated with lower or poorer self ratings of health (Kristensen *et al.*, 1998). In contrast with this, a greater number (46.7%) of respondents in this study perceived their health to be good. This could be as a result of the high mental health scores obtained by respondents. The good mental health being of respondents undoubtedly influenced the perception of their health.

Effect of other chronic illness on quality of life of respondents: Linear regression analysis found a significant relationship between the number of other chronic illnesses reported by respondents and their physical functioning and body pain scores. The greater the number of chronic illnesses reported, the lower the physical functioning scores. This is comparable to the study by Crouchley and Daly (2007) in Western Australia where Physical well-being was observed to deteriorate with increasing number of illnesses reported by respondents.

CONCLUSION

In conclusion, obesity and overweight were associated with impaired physical Health and majority of the respondents in this study had problems with work or other daily activities as a result of role physical impairment. Moreover the number of additional chronic illness reported aside obesity affected physical functioning and body pain scores of respondents and the relationship established was an inverse relationship. In general, majority of the respondents had good quality of life.

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