



Original Research Article

## The Effect of Counselling on Motivation for Life Style Change in Literate Obese Clients in a Primary Care Setting

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### ABSTRACT

Obesity is a growing health problem in which Life style changes have the greatest potential of any current approach for decreasing morbidity and mortality and improving quality of life in diverse populations. Motivation is an important first step toward any action or change in behaviour. The aim of this study was to examine the effect of 5As counselling on motivation for life-style change in literate obese patients. It was a single blinded, randomised control trial. The main outcome measure was motivation to change as measured by URICA scores.

The study was carried out between July and October 2012. Sixty-eight consenting obese patients receiving care at the general outpatient department of Bingham University Teaching Hospital were recruited and randomly allocated into intervention (5A's counselling) and control (standard care) study arms. Socio-demographic variables and motivation to change scores of the patients were obtained with questionnaires (standard questionnaire and URICA questionnaire) from both groups. The data was collated and analysed using SPSS version 19.0. At baseline, the intervention and control groups were comparable with regards to age, sex, marital status, body mass index, educational level, occupation, self-efficacy and URICA scores. Post intervention, there was a significantly higher mean URICA score increase for the 5A's counselling group compared to the usual care group (8.52±1.62 to 10.53±5.72, p≤0.001). A higher proportion of the intervention group were in the preparation to action TTM category compared to the control (35.3% vs. 17.6%, p<0.001). The study showed that 5A's counselling increased motivation to change in literate obese patients.

**Key words:** counselling, obesity, motivation, self-efficacy, primary care, URICA score

### INTRODUCTION

Obesity is a serious and growing health problem, which is not receiving the attention it deserves from primary care practitioners. Obesity is a chronic multifactorial disease that involves an imbalance of energy intake and caloric

expenditure. [1,2] It is influenced by socioeconomic status, cultural, psychological, environmental, metabolic and genetic factors as well as 'lifestyle'. [1,3-4] Based on BMI, the prevalence of obesity in the United States was found to be 33.8% in a survey conducted from 2007 to 2008. Each year, an

estimated 300,000 adult Americans die of causes related to obesity. <sup>[1]</sup> In the United Kingdom, the prevalence is 23% among men and 24% among women. <sup>[5]</sup> Abubakari et al reported a prevalence of 10% in the West African sub-region with the odds of being obese being 3.2 among urban women compared to men. <sup>[6]</sup> In Ghana and Republic of Benin, obesity is found in 13.6% and 18% respectively of adults. <sup>[6,7]</sup> Obesity was previously considered a problem only in high income countries, but it is now dramatically on the rise in both low- and middle-income countries. <sup>[8]</sup> Obesity is not a condition of only the wealthy. In many affluent nations, minorities, those in the lower socioeconomic classes, and those rural dwellers often show higher rates of obesity compared to wealthier citizens. <sup>[9,10]</sup>

Risky behaviours are a major cause of preventable morbidity, but counselling techniques for life style changes to address them are poorly utilized in primary health care settings. <sup>[11]</sup> Life style changes have the greatest potential of any current approach for decreasing morbidity and mortality and for improving quality of life across diverse populations. <sup>[11]</sup> Health behaviour research has shown that helping people identify risks to their health by counselling can facilitate the process of healthy change. <sup>[11]</sup> Most patients presenting to outpatient departments are treated for other chronic disease without screening or counselling for obesity. <sup>[11,12]</sup> Health care providers and their staff play a unique and important role in motivating and assisting patients' healthy behaviour changes. <sup>[11,12]</sup> Primary care physicians have an important role in assisting patients to change their lifestyle-related behaviour. <sup>[11,12]</sup> Patients report that primary care clinicians are expected sources of preventive health information and recommendations. <sup>[11-14]</sup> However, competing demands for limited time often push primary prevention

to the bottom of the agenda for many routine primary care visits. <sup>[12,13,15]</sup>

Counselling is 'a systematic process which gives individuals an opportunity to explore, discover and clarify ways of living more resourcefully, with a greater sense of well-being. <sup>[11]</sup> Counselling techniques for behavioural change that have been developed for primary care include motivational interview and brief interventions. <sup>[12,16-21]</sup> Motivational interviewing (MI) is a collaborative person centred guidance strategy to elicit and strengthen motivation to change. <sup>[16]</sup> It evolved from Carl Roger's client-centred counselling approach which focuses on the person's interests and concerns, but differs by being consciously directive toward resolving ambivalence and moving toward change. <sup>[21]</sup> The goal is to increase intrinsic motivation rather than to impose it externally. <sup>[16-21]</sup>

Brief counselling is widely used in primary care because of its simplicity, and several models for brief counselling have been developed specifically for the outpatient primary care setting. <sup>[12]</sup> Some of the models for brief counselling are; the 5A's (ask, assess, advice, assist and arrange), menu of strategies, empathic style and promotion of self-efficacy. The techniques are stepwise protocols that are effective for smoking cessation and reducing excessive alcohol consumption. <sup>[12]</sup> Other methods include wellness motivation pathway and behaviour change pyramid. <sup>[12]</sup> These methods have also been adapted for other conditions like obesity and treatment of non-adherence. <sup>[12]</sup>

The 5A's construct- ask, assess, advise, assist, and arrange- adapted from tobacco cessation interventions in clinical care provides a workable framework to report behavioural counselling interventions. <sup>[11,12]</sup> The 5A's (ask, assess, advise, assist, arrange) are a framework for clinicians to

ask about current behaviour, advise a change, assess readiness to change, assist with goal-setting, and arrange follow-up. [11] The 5A's have been endorsed as a unifying framework for behavioural counselling in primary care. [11,12] The level of evidence is moderately strong for several health behaviours and is growing for physical activity and obesity. [16-21] In a study in which two independent coders analysed audio recordings of 5A's intervention; inter-rater reliability was ensured by the double coding of 20% of the conversations. [14] The Inter-rater agreement was calculated using Cohen's Kappa. [8] All codes had substantial agreement (Ask=.87, Advise=.78, Assess=.87, Assist=.77, and Arrange=1.0). [14]

Motivation is the driving force by which humans achieve their goal, and could be intrinsic or extrinsic. [21-27] Motivation for change involves having the belief that changing one's behaviour can influence an outcome. [21-27] Client motivation for change is not a single attribute, but varies in intensity. It is critical for behavioural weight loss programmes. [21-27] Motivation is measured in highly variable ways which can be interchangeable sometimes. [21-27] Research investigating sources of motivation for change typically have compared intrinsic sources of motivation (e.g. feeling a sense of accomplishment, spiritual experiences and health concerns) with extrinsic sources (e.g., financial incentives, social and situational influences). [21-27] Generally, internal motivation is associated with greater long-term change than external motivation. [21-27] Trans-theoretical Model (TTM, also known as the "stage model"), is one of the leading models of health behaviour change. [22-27] It offers a systematic and empirically based approach to conceptualizing and assessing readiness to change in various behaviours. [21-27] TTM understands change as a process, over time, through a series of stages: Pre-

contemplation, Contemplation, Preparation, Action, and Maintenance. [21-27]

The stage of change is the TTM's central organizing construct. There are few published instruments developed to measure the therapeutic change process in accordance with the Trans theoretical model. [11]

The instruments for measuring the therapeutic change process can be categorized into three main groups:

- I. Multi-dimensional questionnaires. e.g. the University of Rhode Island Change Assessment (URICA), the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) and the Readiness to Change Questionnaire (RTCQ). [28,29]
- II. Single-item continuous measures of readiness to change e.g. Contemplation Ladder developed by Biener and Abrams. [30]
- III. Staging algorithms and self-categorizations.

A study found a highly significant correlation of 0.64 between the ladder score and a single-item measure of intention to try to quit. [30] It should be noted that the contemplation ladder does not represent the full set of stages: it does not include the action stage or the maintenance stage. [31]

Virtually all the studies that have used contemplation ladders or readiness rulers have treated the scores as continuous measures of readiness to change. [32] This approach is inconsistent with the idea that change involves movement through a sequence of discrete stages. [32] Furthermore, the use of measures of behavioural intention as criteria for assessing the validity of ladders and rulers raises the question of whether intention measures could themselves be used as a simple way of assessing readiness to change. [33]

The staging algorithm uses a small number of questionnaire items and a set of rules to allocate participants to stages in such a way that no individual can be in more than one stage. [32] Self-categorizations are single-item measures in which participants are presented with a list of statements, each of which represents a stage, and are asked to select the one that best describes them. [32] Both of these methods are brief and simple, compared to multi-dimensional questionnaires. [32] (Staging algorithms could be highly complex but in practice they use a small number of items and a simple set of rules). [32] The resulting measure is analysed as a set of categories rather than as a continuous scale, this approach is in principle more consistent with the assumption of discrete stages than either of the other two methods. [32]

## **MATERIALS AND METHODS**

This study was carried out between July and October 2012. A total of 1560 patients were seen during the period and 68 were recruited for the study after obtaining approval from the Health Research Ethics committee of the Bingham University Teaching Hospital Jos. Informed consent was obtained from the participants after due explanation. A structured questionnaire including age, gender, marital status, occupation, level of education was administered to the participants. Anthropometric data which included weight, height and WC were obtained using standard techniques, [1] and BMI was calculated as weight in kilograms divided by the square of the height in metres. Based on WHO criteria for obesity, participants who's BMI were up to  $30\text{kg/m}^2$  and above were regarded as obese. [1] Participants with WC  $>88\text{cm}$  for women and  $>102\text{cm}$  for men were regarded as having central obesity.

Patients who were 18 years and above, whose BMI was  $\geq 30\text{kg/m}^2$ , and were

able to read and write English were included. We excluded patients who could not read and write in English, who were older than 65 years and who were too sick to participate in the study. The calculated sample size was 68 with a 10% attrition rate, for a 95% confidence level and 80% power to determine a difference in mean URICA score of 10 based on a previous study. [7] A table of random numbers was used to generate two unmatched groups (intervention and control groups) in blocks. Both groups were first given the structured questionnaire and pre-test URICA forms to fill out. Patients from the intervention group were seen by one of the Investigators for the 5A's counseling. The control group patients were seen by Research Assistant 1 for usual OPD care. The usual OPD care consisted of attending to the medical problems of the client and giving appropriate counseling other than the 5A's. At the end of the consultation, the post URICA test forms were filled by the patients (both groups) and submitted to Research Assistant 2.

Motivation was measured using the URICA questionnaire. The total URICA score (RTC score) was calculated for each patient in both groups. This was used to classify patients into TTM stage of change group into:

1. Readiness to change score of  $<8$ : Pre-contemplation.
2. Readiness to change score of 8-12: Contemplation.
3. Readiness to change score of  $>12$ : Preparation to action.

Self-efficacy was measured using a five point Likert scale. The Statistical Package for Social Sciences (SPSS) version 20 statistical software was used for data analysis.

## **RESULTS**

### **Socio-demographic characteristics of study group at baseline**

Most of the study participants (38.2%) were aged between 41 to 50 years, Females constituted 76.2% of the entire study population, most of the participants (83.8%) were married, had tertiary education

(64.7%), almost half (54.4%) of them were from professional groups and earned forty thousand naira or more. There was no statistically significant difference between both groups. Details are in Table 1.

**Table 1. Socio-demographic characteristics of the intervention and control groups**

Variable	Intervention N (%)	Control N (%)	Total N (%)	P value
Age group (years)				0.101
• 21-30	• 1 (2.94)	• 2 (5.88)	• 3 (4.41)	
• 31-40	• 9 (26.47)	• 15 (44.12)	• 24 (35.29)	
• 41-50	• 18 (52.94)	• 8 (23.53)	• 26 (38.24)	
• 51-60	• 6 (17.65)	• 7 (20.59)	• 13 (19.12)	
• >60	• 0 (0)	• 2 (5.88)	• 2 (2.94)	
Sex				1
• Female	• 26 (76.5)	• 26 (76.5)	• 52 (76.5)	
• Male	• 8 (23.5)	• 8 (23.5)	• 16 (23.5)	
Marital status				0.09
• Divorced	• 0 (0)	• 2 (5.88)	• 2 (2.94)	
• Married	• 32 (94.12)	• 25 (73.53)	• 57 (83.83)	
• Single	• 1 (2.94)	• 6 (17.65)	• 7 (10.29)	
• Widowed	• 1 (2.94)	• 1 (2.94)	• 2 (2.94)	
Educational status				0.258
• Primary	• 6 (17.7)	• 7 (20.6)	• 13 (19.1)	
• Secondary	• 8 (23.5)	• 3 (8.8)	• 11 (16.2)	
• Tertiary	• 20 (58.8)	• 24 (70.6)	• 44 (64.7)	
Occupational group				0.76
• Manual worker	• 1 (2.94)	• 1 (2.94)	• 2 (2.94)	
• Self employed	• 15 (44.12)	• 13 (38.24)	• 28 (41.18)	
• Professional	• 18 (52.94)	• 19 (55.88)	• 37 (54.41)	
• Unemployed	• 0 (0)	• 1 (2.94)	• 1 (1.47)	
Income group (Naira)				0.07
• 0-10,000	• 5 (14.7)	• 5 (14.7)	• 10 (14.7)	
• 10,001-20,000	• 4 (11.8)	• 3 (8.8)	• 7 (10.3)	
• 20,001-30,000	• 7 (20.6)	• 6 (17.7)	• 13 (19.1)	
• 30,001-40,000	• 1 (2.9)	• 2 (5.9)	• 3 (4.4)	
• >40,000	• 17 (50)	• 18 (52.9)	• 35 (51.5)	

P<0.05 – Significant; P>0.05 – Not Significant

**Pre-intervention self-reported motivation and self-reported self-efficacy levels**

There was no difference in the baseline self-reported motivation and self-efficacy of the two groups, and most of the study participants (58.8%) were not confident (self-efficacy) that they could lose weight. Details are in Table 2.

**Table 2 distribution of self-reported motivation/self efficacy in the study.**

Variable	Intervention N (%)	Control N (%)	Total N (%)	P value
Self-reported motivation				0.07
• No	• 7 (20.6)	• 14 (41.2)	• 21 (30.9)	
• Yes	• 27 (79.4)	• 20 (58.8)	• 47 (69.1)	
Self-efficacy				0.324
• No	• 18 (52.9)	• 22 (64.7)	• 40 (58.8)	
• Yes	• 16 (47.1)	• 12 (35.3)	• 28 (41.2)	

P<0.05 – Significant; P>0.05 – Not Significant

**Anthropometric measurements of the participants at baseline.**

At baseline, the two groups were comparable with regards to age and anthropometric measurements like weight,

height, BMI and abdominal circumference. Other details are in Table 3 below.

**Table 3. Baseline anthropometric measurements of the two groups (intervention and control).**

Characteristics	Intervention (N=34) Mean±SD	Control (N=34) Mean±SD	P value
Age (years)	44.38 ± 8.01	42.53±10.25	0.303
Weight (Kg)	97.19 ± 13.47	102.83 ± 11.32	0.749
Height (m)	1.61 ± 0.076	1.65 ± 0.092	0.473
BMI (Kg/m <sup>2</sup> )	37.29 ± 4.53	37.47±4.06	0.466
ABC (cm)	111.56 ± 9.72	114.65 ± 13.97	0.244

\*p-Independent sample T-test  
P<0.05 – Significant; P>0.05 – Not Significant

## Clinical parameters

### Distribution of BMI

Most of the participants (45.6%) were in obese class II, 27.9% were in class III, while 26.5% were in class I. Other details are in Table 4.

**Table 4. Distribution of BMI in the study population**

BMI group (Kg/m <sup>2</sup> )	Intervention N (%)	Control N (%)	Total N (%)	P value
30-34.9 (I)	8 (23.5)	10 (29.4)	18 (26.5)	
35-39.9 (II)	19 (55.9)	12 (35.3)	31 (45.6)	
>40 (III)	7 (20.6)	12 (35.3)	19 (27.9)	0.21

\*p-Pearson's Chi-square  
P<0.05 – Significant; P>0.05 – Not Significant

### Distribution of Abdominal Circumference

a. Females: The median abdominal circumference of both groups was 111cm but the mean of the intervention group was 112.04±9.27cm vs. 110.35±8.84cm for the controls. There was no significant difference in the two groups (p=0.223). All the AC measured were >88cm.

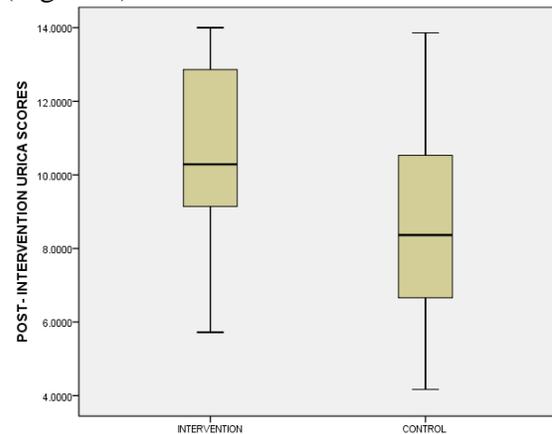
b. Males: The mean abdominal circumference was 115.5±11.99cm in the intervention group vs. 123±8cm in the control group. There was no significant difference in the two groups (p=0.364). All the abdominal circumferences measured were >102cm (very high).

### Summary of the pre-intervention URICA score of the study for both groups

The baseline mean URICA scores were comparable in the intervention vs. control groups (8.52±1.62 vs. 8.84±1.66, p=0.402).

### Summary of the post-intervention URICA score in the study

There was a mean URICA score of 10.53±2.35 in the intervention group vs. 8.63±2.60 in the control group. There was a statistically significant difference as indicated in the Box whisker plot below (Figure 1).



**Fig 1. Box-Whisker plot summary of the post-intervention URICA scores.**

\*p-Independent sample T test, \*p=0.005  
P<0.05 – Significant; P>0.05 – Not Significant

Change in pre/post intervention URICA scores.

There was a slight increase in the mean URICA scores in the control group from 8.84±1.66 pre-intervention to 8.63±2.60 post intervention, p= 0.576. In the intervention group, there was a change from a mean URICA score of 8.52±1.62 at baseline to a mean score of 10.53±5.72 post intervention, p≤0.001.

### Comparison of the pre/post intervention stage of change of the study participants.

At the end of the intervention, more patients moved from pre-contemplation to contemplation; and preparation to action in the intervention group compared to the control group. Other details are in Table 5 below.

**Table 5. Comparison of the post intervention stage of change of the study participants.**

Stages of change	Intervention N (%)	Control N (%)	Total N (%)	P value
Pre-contemplation	6 (17.6)	19 (55.9)	25 (36.8)	
Contemplation	16 (47.1)	9 (26.5)	25 (36.8)	
Preparation to action	12 (35.3)	6 (17.6)	18 (26.4)	<0.001

\*p=Pearson's Chi square.

P<0.05 – Significant; P>0.05 – Not Significant

Factors affecting motivation for lifestyle change in the control group

None of the variables indicated in Table 6 showed any statistically significant predictor relationship with the post intervention readiness to change category.

**Table 6. factors affecting motivation for lifestyle change in the control group**

Variable	Adjusted Odds Ratio	95% Confidence Interval
Self-reported motivation (No)	0.385	0.028-5.273
Income (>40,000 naira)	0.092	0.005-1.818
Self-efficacy (No)	2.981	0.210-42.264
Pre-morbid illness (None)	0.565	0.062-5.168
Occupation (Professional)	5.316	0.403-70.154

\*Nominal regression

4.4.2 Factors affecting motivation for lifestyle change in the intervention group

No factor indicated any statistically significant predictor relationship with post intervention readiness to change category. Other details are in Table 7.

**Table 7. Factors affecting motivation for lifestyle change in the intervention group**

Variable	Adjusted Odds Ratio	95% Confidence Interval
Self-reported motivation (No)	9.236	0.398-214.58
Income (>40,000 naira)	1.771	0.272-11.522
Self-efficacy (No)	0.098	0.006-1.532
Pre-morbid illness (None)	19.285	0.755-492.541
Occupation (Professional)	6.723	0.594-76.054

\*Nominal regression

## DISCUSSION

At baseline, the intervention and control groups were comparable with regards to socio-demographic data, anthropometric measurements and key

clinical parameters as indicated in Tables. The pre-intervention mean URICA score for both groups was also similar and indicated that most of the participants were in contemplation stage. This is comparable to a study done by Larforge et al in the U.S.A. [34] This is an important finding since both groups were not purposefully matched before the study.

The mean post-intervention URICA score for the intervention group was  $10.53 \pm 2.35$  indicating that most of participants in the intervention group were still in contemplation although with a higher mean URICA score. Most of the participants in the control group remained in contemplation but the mean URICA score decreased to  $8.63 \pm 2.6$  in the control group. There was a significant statistical difference between the two groups. This indicates that the 5A's counselling had a positive effect on motivation to change in the intervention group. This compares favourably with a study done by Evers et al though their study was done among patients with substance abuse. [26] Another study by Jay et al showed that patients with higher levels of motivation and intentions reported receiving more 5A's counselling techniques than those with lower levels. [35] Our findings however are in contrast to a study by Dixon et al in the U.S.A which found that the level of a patient's motivation, as measured by the URICA RTC score, was not associated with behaviour change. [36]

### The Mean Change in URICA Score

The mean change in URICA score for the control group was  $-0.21 \pm 2.13$  while that of the intervention group was  $2.01 \pm 2.33$ . The control group scored lower overall in motivation after standard care i.e. they were more likely demotivated. This indicates that in the setting of a typical outpatient setting where TTM staged matched counselling is not done, clients might end up demotivated rather than

motivated to lose weight. For the intervention group however, the mean change was positive. This means that they gained at least two points in the URICA score after a session of 5As counselling in the outpatient setting. This means that the intervention (counselling) had an effect on motivation for life style change. This is comparable to a study done in the U.S.A by Sandoval et al (the mean URICA score in the intervention group was 1.43 while that of the control group was  $-0.14 \pm 1.25$ ).<sup>[37]</sup> However, the Sandoval study was done among hypertensive patients in contrast to the study done by Dixon et al in which the intervention did not have an effect on motivation to change.<sup>[36]</sup>

### **Stage of Change**

Majority of the participants in this study were in pre-contemplation (47.1%) at the pre intervention stage. This is similar to studies done by Laforge et al<sup>[34]</sup> and Venner et al in U.S.A.<sup>[37]</sup> In their research they compared stage distribution across behaviour and populations, and found out that 40% were in pre-contemplation, 40% in contemplation and 20% in preparation to action. In the post-intervention stage in this study however, more patients moved from pre-contemplation to contemplation and from contemplation to action in the intervention group. There was a statistically significant difference between intervention and control groups. Since the two groups were similar before the intervention, the difference shown is most likely due to 5A'S counselling.

The stage of change is more useful than the URICA score in clinical practice because it can determine which intervention the clinician should provide e.g., during pre-contemplation and contemplation, patients are more likely to respond to a cognitive approach, such as discussing the benefits of habit change, possibly supported by written information. In the pre-contemplation stage,

the patient perceives that the disadvantages of changing outweigh the benefits, whereas this pattern is reversed in the action stage.

### **Factors Affecting Motivation for Life Style Change**

None of the studied factors were significantly related to increased motivation for lifestyle change in the control and intervention groups. Jay et al in the U.S.A. found that age and actively trying to lose or maintain weight were major factors affecting motivation to lose weight.<sup>[35]</sup> Other investigators had suggested that increases in self-efficacy may be associated with greater intention to exercise,<sup>[35]</sup> but this was not the finding in this cohort of patients.

**Limitation:** The effect of counselling on a single pre and post-intervention measure of readiness to change is time dependent; it might have an effect on short-term behavioural change but maybe of limited value on long term change. The study was not done on a diverse population. Only literate obese patients were studied, so caution should be made when generalising the results to a population with significant number of non-literate members. The URICA questionnaire was not validated in Nigerian populations and not yet widely available in many primary care settings, which could be a barrier to widespread adoption.

### **CONCLUSION**

The study showed that 5A's counselling increased motivation to change in literate obese patients compared to standard care in the outpatient clinic. This shows that patients could be motivated for life style change well before extensive damage is done to health even in the busy out-patient department setting.

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