Aktan N, J Community Med Public Health Care 2016, 3: 020
DOI: 10.24966/CMPH-1978/100020

HSOA Journal of Community Medicine and Public Health Care

Research Article

An Interventional Approach to Obesity in an Ambulatory Care Setting

Nadine Aktan*

Department of Nursing, William Paterson University, New Jersey, USA

Abstract

This interventional approach to obesity took place over a three-month period tracking Body Mass Index (BMI) and the Ambulatory Care Experiences Survey (ACES) to assess patient experiences. Obesity was defined as a BMI greater than or equal to 30 as per world health organization guidelines. It was hypothesized that a Nurse Practitioner (NP) supervised medical weight loss program can have a positive impact over time and that patients who have positive patient experiences will have success in reducing their BMI (n = 38). Overall weight loss was significant (p = 0.00, t = 2.98) and the most significant predictor of weight loss was length of enrollment (p = 0.04, F = 4.27). Total score on the ACES and BMI were significant (p = 0.00, t = 3.32). Total score and length in program were significant (p = 0.00, r = 0.14). Age and weight loss was significant with greater weight loss seen in younger participants (p = 0.03, t = 2.93) and (p = 0.03, t = 2.11). Weight loss has been found to reduce mortality and morbidity in a variety of conditions and the majority of the sample reported having a chronic condition that could be positively affected by weight loss.

Introduction

Obesity is defined as abnormal or excessive fat accumulation that may impair health whereas the Body Mass Index (BMI) is greater than or equal to thirty (http://www.who.int/mediacentre/factsheets/fs311/en/). The problem of obesity is a national epidemic. It has been reported that, in 2012, 34.9% of adults aged 20 and older are obese in the United States [1]. Obesity leads to a myriad of chronic health problems including heart disease, Type II diabetes, stroke and some types of cancers and the estimated annual medical cost of obesity in the USA was $147 billion in 2008 [2]. Obesity can also result in a reduction in quality of life as well as psycho-emotional distress. There is now substantial interest in measuring patient experiences as patient experiences may play an integral role in these outcomes [3]. Therefore, there is significant interest in the exploration of health care outcomes and the relationship patient experiences play in improving patient outcomes. There is strong previous literature support of patient experiences and health care outcomes [4-9]. This growing body of work demonstrates need to consider patient experiences and their effect on health care outcomes by nursing professionals.

Nurse Practitioners (NPs) play a major role in the provision of care in ambulatory settings and a major gap in this literature has been identified. Research involving health care outcomes is critical to nursing and related disciplines. Previous studies have demonstrated the effectiveness of provider-monitored weight loss programs [10]. This study was built upon this previous work as both were framed using pender's health promotion model suggesting that good health is not just the absence of disease but implies that every patient can pursue better or ideal health [11]. It was hypothesized that a NP supervised medical weight loss program can have a positive impact over time and that patients who have positive patient experiences will have success in reducing their BMI. This work is important as it has been reported that significant reduction in cardiovascular risk exists in clients who decrease their BMI by just ten percent.

Literature Review

Renouf, Bradbury, Yardley, and Little [12] explored how interventions may be a cost-effective method of aiding weight loss, but previous works suggest that human support in online weight loss interventions may give mixed results. To evaluate patients' experiences of different levels of accompanying support, a qualitative study comparing two levels of support from a nurse, Basic Support (BS) with three scheduled contacts and Regular Support (RS) with seven scheduled contacts, was conducted. After 12 months, interviews were conducted, followed by inductive thematic analysis. Three major themes were identified: experiences of nurse support, patient differences in motivation and preferences for nurse support, and modes of delivery of nurse support [12]. Patients receiving BS tended to place little importance on seeing the nurse and were more autonomously motivated, while patients from the RS group perceived the nurse as a motivation factor, describing support as a guilt trip or fear factor to lose weight. The more regular support for online interventions seems to have the potential to promote reliance on some level of external support and inhibit the development of autonomous motivation for weight loss [12].

Neil and Roberson [13] explored patients who undergo obesity-related bariatric surgery and found to be three main motivating categories for weight loss: psychological, medical, and quality of life. This study indicated that the nurse often is the key point of contact and main care provider during all per operative phases for patients undergoing bariatric surgery. The must be well informed of the patients' motivating factors, as well as the patients' multiple-step preparation for surgery, so that the patients can be well informed, motivated, and cognizant of the operative risks [13].

Tappenden, Ouatrara, Parkhurst, Malone et al., [14] addressed how proper nutrition has the potential to improve patient care and clinical outcomes and reduce costs. Nutrition intervention is a low-risk; cost-effective strategy to improve quality of care, but it

***Corresponding author:** Nadine Aktan, Department of Nursing, William Paterson University, New Jersey, USA, Tel: +1 9737202673; E-mail: Aktann@wpunj.edu

Citation: Aktan N (2016) An Interventional Approach to Obesity in an Ambulatory Care Setting. J Community Med Public Health Care 3: 020.

Received: July 07, 2016; **Accepted:** September 01, 2016; **Published:** September 15, 2016

requires interdisciplinary collaboration. This work highlights available data on the role nutrition plays in improving patient outcomes, outlines a nutrition care model, and underscores the importance of an interdisciplinary approach. Six key principles for advancing patient nutrition were developed by the authors: creating an institutional culture where all stakeholders value nutrition, redefining clinicians' roles to include nutrition care, recognizing and diagnosing those at risk, rapidly implementing comprehensive nutrition interventions and continued monitoring, communicating nutrition care plans, and developing a comprehensive nutrition education plan [14].

Villareal, Chode, Parimi, Sinacore et al., [15] conducted a one-year, randomized, controlled trial with 107 adults aged 65 and older. Placed in one of four groups, a control group, a dieting group, an exercise group, and a diet plus exercise group. Also measured were scores on the functional status questionnaire and quality of life via 36-Item Short-Form health survey (SF-36), looking at changes from baseline measurements upon completion of the trial. The diet and exercise group increased their score the greatest (by 21%) than the diet-only or exercise-only groups (12 and 15%, respectively) [15].

Blumenthal-Barby and Burroughs [16] explored how the different ways that psychology and behavioral economics can be used to "nudge" people towards particular decisions or behaviors related to health or health care. The main practices studied were 1) the use of incentives; 2) the use of defaults; 3) the use of salience, where people are influenced by novel, personally relevant or vivid examples and explanations; 4) the power of norms and messengers; 5) the use of priming/subconscious cues; and 6) the exploitation of commitments and ego. The authors argue that an ethical framework is needed for the responsible deployment of these techniques [16].

Appel, Clark, Yeh, Wang, et al., [10] conducted a two-year, randomized, controlled trial with 415 obese patients that had at least one cardiovascular risk factor. Placed in one of three groups: control group, group provided weight-loss support remotely (telephone, web site, and email), and group provided in-person support during group and individual sessions as well as remote support. It was hypothesized that patients in two intervention groups would lose more weight than those in the control group, as well as that those receiving in-person support would lose more weight than those receiving only remote support. Outcomes were a percentage of weight change from baseline, percentage of participants without weight gain, percentage of participants who lose at least 5% of their initial weight, and change in BMI from baseline. Participants in both active intervention groups lost significantly more weight (mean approx. -4.8 kg) than those in the control group (mean approx. -0.8 kg). Changes in weight from baseline did not differ significantly between the two different groups, not confirming the hypothesis that in-person support would yield greater weight loss than remote-only support [10].

Dutton, Phillips, Kukkamalla, Cherrington, et al., [17] conducted a six-month single-group pilot study looking to evaluate the feasibility, acceptability, and initial outcomes of using peer coaches to deliver weight loss treatment in primary care. Participants were predominantly African Americans with diabetes or pre-diabetes, who were obese and had at least one additional cardio-metabolic risk factor (n = 23). The intervention included a combination of 12 group-based office visits plus 12 individual telephone contacts with a trained peer coach with the long-term goal of identifying an alternative weight loss intervention. The primary outcome was weight change from baseline and other outcomes/measurements included participant adherence and satisfaction. Participants showed a significant mean weight loss (-4.5 kg), attended approximately 50% of the group visits and 40% of the intended telephone calls, and were generally satisfied with the program [17].

Armstrong, Mottershead, Ronksley, Sigal et al., [18] studied motivational interviewing which has been seen to be effective in addiction fields, but its efficacy in weight-loss interventions is unclear. This meta-analysis looked at various randomized controlled trials that evaluated behavior change interventions using motivational interviewing in overweight or obese adults. There were 12 different studies included for review. The effect size for each intervention was calculated by the change in mean body mass from baseline to end of follow-up and compared between groups. In the analysis of these studies, it was found that they demonstrate an effect size of 0.51 ds for reducing body mass over and above the control interventions. This is consistent with some prior work and is considered a 'medium' effect size, corresponding to a weight loss of 1.47 kg over and above those in control groups [18].

Leblanc, O'Connor, Whitlock et al., [19] conducted a meta-analysis which summarized the effectiveness and harms of primary care-relevant weight-loss interventions for overweight and obese patients. The USA preventative services task Force recommended screening for obesity and offering intensive counseling and behavioral interventions to promote weight loss, but concluded that evidence was insufficient to recommend for or against moderate- or low-intensity counseling together with behavioral interventions. This systematic review sought to help update those recommendations. A total of 36 studies were selected for inclusion in the meta-analysis and the effect size of behavioral and pharmacologic interventions on weight loss were estimated. Most trials showed that behavioral interventions had a statistically significant effect on weight loss at 12 to 18 months, as well as a trend towards greater weight loss with longer interventions. Participants were found to lose, on average, 6% of baseline weight in 12 to 18 months, which is considered clinically meaningful [19].

A previously conducted study on patient experiences and health care outcomes in the same population and setting has yielded significant findings [20]. In Aktan's work, one hundred and twenty adult patients comprised the sample of convenience [20]. Here, patient experiences were operationalized using the Ambulatory Care Experiences Survey (ACES) and health care outcomes the Short Form-36 health survey questionnaire (SF-36). Specific health care outcomes were assessed and a statistically significant relationship was found between patient satisfaction and BMI ($p = 0.19$, $r = 0.224$). In addition, the mean BMI for the population was 29.69. Therefore, the target population has been found to be overweight or obese according to the world health organization standards as cited above. Further, significant relationships exist between BMI and systolic and diastolic BP ($p = 0.000$, $p = 0.001$) so that the reduction of cardiovascular risk was an important targeted outcome [20].

Methods

Participants self-referred or were referred by their primary care provider. This summer program consisted of the provision of a 1500-1800 calorie, low calorie diet and detailed instructions to follow 30 minutes of an aerobic activity program 3-4 times per week. Written materials on the recommended diet were provided. After institutional review board permission was received, the program was reviewed carefully by the NP primary investigator during the first encounter, once informed consent was obtained. Further, the NP performed a

comprehensive history and physical examination to ensure for appropriateness of and safety to participate in the prescribed regime. Body Mass Index (BMI), a computation of height and weight, was calculated and recorded following the initial and at subsequent each weekly visit which took place over a three-month period. Further contact with the NP was limited to participant initiated phone calls and/or email answering of questions.

Demographic data were collected and the Ambulatory Care Experiences Survey (ACES), an eleven summary, self-report, measure of patients' experiences across 2 domains: quality of physician-patient interactions and organizational features of care was administered to assess patient experiences, whereas greater total score indicates more positive patient experiences. Descriptive and inferential statistics were conducted using SPSS Version 23. Regression analysis, t-test, and ANOVA were performed.

Results

The first one hundred participants referred were counseled about and enrolled in the study and thirty-eight returned completed packets and attended the first weekly session for a 38% response rate. Descriptive statistics are as follows. The sample characteristics included an age range of 19-74 with a mean age of 47.4. The sample was 89.5% female. Participants reported maintaining a relationship with their primary care provider for a range of 1-5 years. Seventy-nine percent reported having a primary care provider and visiting that provider care in the past 12 months and fifty-eight percent reported having a history of co-morbidities that could be affected by obesity such as hypertension, diabetes, COPD, CHF, and arthritis.

This study yielded a number of significant findings. Overall weight loss was significant ($p = 0.00$, $t = 2.98$) with a mean weight loss of 2.6147 pounds (SD 5.1204) and the most significant predictor of weight loss was length of enrollment ($p = 0.05$, $F = 4.27$). Total score on the ACES and BMI were significant ($p = 0.00$, $t = 3.32$). Total score and length in program correlation were significant ($p = 0.00$, $r = 0.14$). Age and weight loss was assessed in groups (<31, 31-50, >51) with significant weight loss seen in younger participants ($p = 0.03$, $t = 2.93$) and ($p = 0.03$, $t = 2.11$). Weight loss for those over 51 years was not significant ($p = 0.12$, $t = 1.24$). Total score and weight loss was significant in those who scored less than 61 on the total score ($p = 0.03$, $t = 2.09$) and above 81 ($p = 0.01$, $t = 2.60$).

Discussion

The hypothesis that a NP supervised medical weight loss program can have a positive impact over time and that patients who have positive patient experiences will have success in reducing their BMI was supported. There were other significant findings as a result of this program as follows. First and foremost, the sample of this population was identified to be obese and, therefore, at risk for adverse health effects and in need of this intervention. The intervention was provided free of charge and to directly fulfill this previously identified need. Further, most presented with co-morbidities that could be improved or controlled through weight loss. Significant weight loss occurred and younger patients lost the most weight. Participants that stuck with the program longer lost more weight and total score and weight loss proved to be a significant factor as well.

Overall, patients were educated on importance of and strategies for making better choices regarding portion control and better choices in terms of nutritional intake. After study recruitment ceased, additional interest was generated. The NP continued to work with these patients to promote healthy lifestyle choices for interested patients in the practice.

There were a number of methodological limitations to this study. First, the time frame allotted for the summer program led to an inadequate sample size for quantitative analysis. Next a majority of the sample was female (89.5%). In addition, the time of year may have led to the inability to support study hypotheses. Participants missed weigh in appointments due to vacations and other commitments. It is difficult to motivate patients toward certain behaviors such as weight loss. Perhaps providing this program at a different time of year would have yielded larger sample sizes to obtain power and promote generalizability of findings to the population of interest.

Conclusion and Implications for Practice

This study has resulted in a variety of conclusions and implications for nursing practice. First and foremost, significant weight loss occurred and younger patients lost the most weight. One may conclude that a NP initiated weight loss programs does support weight loss in an ambulatory care setting. Length of enrollment (1-12 weeks) was the most significant predictive factor in weight loss so that the longer the participant was enrolled, the greater the weight loss. Therefore, behavioral interventions such as this should focus on keeping clients engaged in the program for longer periods of time to promote significant outcomes.

Finally, differences in total score on the ACES and weight loss were significant. Although weight loss occurred with both lower and higher scores, it is important to note that patient experiences did have a significant impact on weight loss. It is, therefore, recommended that future studies involving larger, random samples explore this relationship to further predict how patient experiences may impact lifestyle practices.

Overall, measuring patient experiences with their providers and how this relates to management of select health conditions and overall health status is an important facet of the role of the NP and other members of the interdisciplinary team. The Institute of Medicine report highlights the importance of and challenges to achieving an outstanding health care system with patient-centeredness being a priority [3]. Future inquiry into ways to improve patient experiences to promote health should remain a focus for NPs and our medical and nursing partners.

Acknowledgement

This research was supported (in part) by a grant from the Center for Research, College of Science and Health, William Paterson University of New Jersey.

Statistical support provided by Dr. Wooi Lim, Associate Professor, William Paterson University.

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