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Running head: PREVENTATIVE HEALTH SERVICES AND WELL-BEING

Evaluating the Impact of Preventative Health Services on Improving General Well-being

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Abstract

Individuals in the United States suffer from an unnecessarily high rate of preventable chronic disease. One reason for this may be the nation's focus on tertiary health care rather than preventive care. Health is multi-dimensional and should therefore be approached in an integrative manner. The current study proposes an integrative and preventative approach to health care services that utilizes Rath and Harter's (2010) five dimensions of well-being. We measured the impact of preventative health services in addition to tertiary care services on the general well-being of individuals over a two-month period of time. We found that those receiving preventative care in addition to tertiary care improved their well-being faster than those who received only tertiary care over a two-month period of time. We conclude that the model of health care in the United States should include services that integrate all components of well-being rather than focusing on disease.

Introduction

The current structure of the health care system in the United States is rooted in a tertiary care approach to patient services. Doctors and patients alike are trained to wait for an illness or disease to develop before health care services are sought after or offered (Marvasti & Stafford, 2012). Despite the widespread practice of tertiary care in western medicine, we argue that it is not the most effective approach to health promotion or disease prevention. According to the Centers for Disease Control and Prevention (CDC), preventable chronic diseases, such as cardiovascular disease, some types of cancer, and diabetes, now cause 70% of deaths in the United States and make up 75% of the country's health care expenses.

Before health outcomes can be improved upon, it is crucial to understand how health is defined. According to the World Health Organization (WHO), health is "a state of complete

physical, mental, and social well-being and not merely the absence of disease or infirmity”. In order for the United States to see an increase in health and decrease in preventable disease prevalence and health care expenditure, each of these components of health must be addressed. That is, the model of care must shift from tertiary care to “well care”; where healthcare is focused on well-being rather than disease.

The WHO’s definition of health refers to the achievement of physical, mental, and social well-being. Therefore, it is also valuable to understand what well-being is and how it can be enhanced in order to improve an individual’s overall health status. According to Rodriquez (2013), well-being is defined as “the presence of positive emotion, the relative absence of negative emotion, and a sense of life satisfaction.” Rath and Harter (2010) propose it is made up of five elements: Career well-being, “liking what you do each day”; Social well-being “having strong relationships and love in your life; Financial well-being “managing your economic life to reduce stress and increase security”; Physical well-being “having good health and enough energy to get things done on a daily basis; and Community well-being “the sense of engagement you have with the area where you live.” Each of these components must be considered when looking to improve or maintain the health of an individual and their community rather than focusing only on the treatment of disease. Thus, the aim of our study is to examine the well-being of participants who are engaging in one of two different health models concurrently and prospectively: receiving care from a primary care doctor or receiving services from a preventative health, wellness based program in addition to their primary care services.

The data for this study were collected from a hospital system in Minnesota, HealthEast Care System. HealthEast is a multi-faceted hospital and health care clinic network that serves Minneapolis, St.Paul, and the surrounding Minnesota area with their comprehensive health

services. In 2012, HealthEast changed their vision statement to reflect a holistic approach to healthcare that focuses on overall patient well-being rather than tertiary care. Their original statement read: “A passion for caring and service”. Their new statement better reflects their revised aim: “Optimal health and well-being for our patients, our communities and ourselves”, (HealthEast, 2012).

In addition to revising their vision statement, HealthEast expanded their services by opening a facility rooted in preventative and holistic health techniques on one of their four hospital campuses. The clinic, aptly named *Ways to Wellness*, is affiliated with the HealthEast Care System but runs its services independently. The clinic is accessible to the general public and the services are paid for privately by each individual that utilizes them rather than through insurance. *Ways to Wellness* offers many different services, all focused on improving individual health and wellness as a means of promoting wellness among the entire community. These services integrate Rath and Harter’s (2010) five proposed elements of well-being and include health and wellness coaching, nutrition education, metabolic and physical fitness testing, group and personal fitness training sessions, and focused social support networks.

Previous research on the improvement of health and well-being has focused on within-group differences through a variety of nutrition and exercised based interventions (National Institutes of Health, 1998). Researchers have shown that individual well-being improves through active engagement in a preventative health program (Kraft et al., 2012.) However, clients at *Ways to Wellness* are offered services that are more comprehensive and integrative than an isolated nutrition or exercise intervention.

Despite HealthEast’s commitment to patient and community well-being through their new vision statement and their services at *Ways to Wellness*, little is currently known about the

well-being of HealthEast's patients or *Ways to Wellness* clients. Baseline wellness data are needed to inform future clinical strategies. This study has the following primary aims: (a) to provide a cross-sectional snapshot of the current well-being among both HealthEast patients and *Ways to Wellness* clients and (b) to examine the changes in well-being within HealthEast patients and *Ways to Wellness* clients over a two month period of time. A secondary aim was to explore associations among individual well-being, perceptions of overall health, and attitudes toward their primary care doctor.

It is hypothesized that both the primary care and *Ways to Wellness* group will improve their well-being score over time but that well-being scores will improve more dramatically among *Ways to Wellness* clients compared to primary care patients because of their focus on "well care" in addition to tertiary care. Because physical health is conceptualized as a component of well-being (Rath & Harter, 2010), it is also hypothesized that reported perception of overall health will be positively associated with the well-being score. Last, it is hypothesized that attitude about the helpfulness of the primary care doctor will vary between groups. Because primary care patients are seeking help from their doctor rather than another source, the hypothesis is that the primary care group will have more favorable attitudes toward their doctors compared to the *Ways to Wellness* group.

Methods

Recruitment

A convenience sample of HealthEast patients was recruited among adults receiving care at a HealthEast primary care clinic located in Oakdale, MN. Patients over the age of 18 were approached in the waiting room of the clinic and asked for their consent to participate in a questionnaire study. The questionnaire consisted of a 5-question wellness survey called the

WHO-5 (WHO, 2006), a space for name, birthdate, and email address as well as questions on baseline wellness over the last year and the reason for their visit. The WHO-5 is a validated 5-item scale developed by the World Health Organization in 1998 that measures an individual's general well-being. We administered the WHO-5 at the time of study enrollment, and then again electronically at 2, 4, and 8 weeks after baseline. Information at the latter three time points was acquired through REDCap, a secure electronic platform. The WHO-5 was also used to measure the general well-being of *Ways to Wellness* clients. Starting in June of 2014, *Ways to Wellness* updated their new client registration packet to include the WHO-5. Each new client that began receiving services at *Ways to Wellness* on or after June 17th, 2014, were given the self-report scale along with a few other questions regarding their wellness goals and their current satisfaction with their healthcare provider. This baseline survey was also sent out to already existing *Ways to Wellness* clients via their monthly "Constant Contact" newsletter. The clients that completed the baseline survey also received the follow-up survey at 2, 4, and 8 weeks post baseline via REDCap.

Measures

We used a baseline survey with both groups to gather information on current overall self-perceived health, satisfaction with their patient-doctor relationship, the primary reason for their doctor visit, and their general overall well-being using the WHO-5 questionnaire. Overall self-perceived health was measured using the question: "What has your overall health been like over the past year?" The response options read: terrible, poor, fair, good, excellent. Satisfaction with their patient-doctor relationship was measured using the statement: "My doctor helps me to lead a fulfilling life". The response options read: "Definitely Not, Probably Not, Not Sure, Probably, Definitely". The primary reason for their doctor's visit was measured using the question: "Why

are you seeing your doctor today?” The response options read: “I got sick recently”, “A check-up”, “A condition I’ve been treated for before”, or “Another reason”.

The overall well-being score for each patient was calculated using the participant’s response to the five specific WHO-5 statements. The directions given were, “For each of the following five statements, please indicate which is closest to how you have been feeling over the last two weeks”. The participants were asked to give each statement a score of zero to five, zero meaning “At no time” and five meaning “All of the time”. The five well-being statements are: “I have felt cheerful and in good spirits”, “I have felt calm and relaxed”, “I have felt active and vigorous”, “I woke up feeling fresh and rested”, and “My daily life has been filled with things that interest me”. For purposes of analysis, items were summed and the scores were categorized into four well-being categories: suffering, struggling, surviving, and thriving. The highest possible sum for well-being score is 100. A score that summed 0 – 24 was categorized as “suffering”, 25 – 49 as “struggling”, 50 – 74 as “surviving” and 75 – 100 as “thriving”.

Statistical Analyses

First, we examined age and gender distributions as well as descriptive statistics concerning the reason for doctor or *Ways to Wellness* visit, attitude toward the primary care doctor, and perceived overall health during the last year. Independent t-tests were used to measure baseline differences between groups for wellness score, attitudes toward their doctor, reported overall health, and age. A generalized linear regression model was also used to measure differences in baseline wellness scores while controlling for other variables.

To test our main hypothesis that wellness scores would improve in the *Ways to Wellness* group and the Oakdale Primary Care group, but at a more dramatic increase in the *Ways to Wellness* group, two repeated measures multivariate models were used to measure changes in

wellness scores across time in each sample. The models were created using time as the independent variable and wellness score as the dependent variable. Changes in wellness score at each time point were compared to baseline wellness score for each group. Age, gender, attitude toward doctor, and overall health were treated as covariates in each model. A sub-group analysis was conducted to measure change in wellness score across time among only those who had a follow up wellness score for each time point across the eight weeks in each group. Correlational analyses were used to examine the relationship between baseline wellness and reported overall health during the last year. An independent t-test was used to determine differences between groups regarding attitude toward their primary care doctor. We ran all statistical analyses using SAS statistical software version 9.3.

Results

Participants

The study participants were 95 adults over the age of 18 receiving health care services at the HealthEast Oakdale, MN primary care clinic and 95 adults over the age of 18 receiving services at *Ways to Wellness*. Among the primary care population, 70 participants identified themselves as female. The average age of the primary care sample was 48.4 ± 15.7 years. Among the *Ways to Wellness* sample, 88 identified themselves as females. The average age of the sample was 44.8 ± 12.1 years.

Among the Oakdale Primary Care group, the reasons for seeing their doctor were: I got sick recently and don't feel well (n=9; 9.6%); a health problem my doctor has been treating for a while (n=15; 16%); a check-up or physical to stay well (n=17, 18.1%); another reason (n=53; 56.4%). Among the *Ways to Wellness* group, the reasons for their visit were: I want to lose weight (n=29, 30.5%); I want to improve my nutrition and eat better (n=14, 14.7%); I want to

improve my fitness (e.g., cardio, strength, flexibility) (n=37, 39.0%); I want to learn how to take better care of myself (n=10, 10.5%); another reason (n=3, 3.2%). These descriptive results are summarized in Table 1 and Figures 1 and 2.

No differences in baseline scores were observed between the Oakdale Primary Care group ($M = 65.04$, $SD = 20.10$) and the *Ways to Wellness* group ($M = 62.58$, $SD = 16.68$), $t(185) = 0.93$, $p = 0.35$. The regression model confirmed this, using the same independent and dependent variables and controlling for age, attitude toward doctor, and overall health, $b = -3.43$, $t(1) = -1.40$, $p = 0.1643$. There were also no differences in reported overall health over the last year between the Oakdale Primary Care group ($M = 3.72$, $SD = 0.87$) and the *Ways to Wellness* group ($M = 3.79$, $SD = 0.75$) $t(188) = -0.58$, $p = 0.561$. The mean age difference between groups was not significant at the .05 level, Oakdale Primary Care group ($M = 48.38$, $SD = 15.68$) and the *Ways to Wellness* group ($M = 44.80$, $SD = 12.18$) $t(187) = 1.75$, $p = 0.081$. There were significantly more men in the *Ways to Wellness* group (n = 25) compared to the Oakdale group (n = 6), $\chi^2(1) = 13.691$, $p = 0.0002$. Table 1.

In order to detect if wellness scored changed over time in each group, we created two separate longitudinal regression models, one for each group, with time as the independent variable and wellness as the dependent variable. We found no significant difference in wellness score across time within the Oakdale Primary care group compared to their baseline score, $F(52) = 1.35$, $p = 0.2669$, (Time1 = 2.019, $p = 0.428$, Time2 = 5.6527, $p = 0.117$, Time3 = 6.614, $p = 0.1120$). This remained consistent in sub-group analyses that utilized only the scores from participants that completed the survey at each time point, $F(27) = 1.32$, $p = 0.2886$, (Time1 = 4.400, $p = 0.1353$, Time2 = 4.00, $p = 0.1730$, Time3 = 5.20, $p = 0.0799$).

The *Ways to Wellness* longitudinal model did reveal differences in wellness score over time among the *Ways to Wellness* group compared to their baseline wellness scores, $F(57) = 4.15$, $p = .0100$ (Time1 = 4.608, $p = 0.064$, Time2 = 10.3057 $p = 0.0046$, Time3 = 11.5325, $p = 0.0259$). See Table 2 and Figure 3. This remained consistent in sub-group analyses that utilized only the scores from participants that completed the survey at each time point, $F(18) = 4.44$, $p = 0.0168$, (Time1 = 8.5714, $p = 0.0566$, Time2 = 14.2857 $p = 0.0032$, Time3 = 12.00, $p = 0.0106$).

There was a significant positive correlation between baseline wellness score and reported health over the last year, $r(177) = .50$, $p < .0001$. We also observed differences in attitude toward primary care doctor between groups. The Oakdale Primary Care group had more favorable attitudes toward their doctors ($M = 4.07$, $SD = 0.80$) compared to the *Ways to Wellness* group ($M = 3.35$, $SD = 1.13$) $t(187) = 4.96$, $p < .0001$.

Discussion

This study examined well-being over a two month period in two different groups of people: those who sought health care through their primary care doctor and those who sought health services at a wellness facility in addition to their primary care services. The purpose of the study was to better understand how to improve healthcare strategies and increase patient well-being. With this study we were able to provide information on baseline wellness and health related questions for clients at *Ways to Wellness* and patients at the HealthEast Oakdale Clinic. The two groups had a similar age distribution and were similar at baseline in their reported overall health over the course of the last year. The average wellness score at baseline was 65.04 out of 100 among the Oakdale group and 62.58 out of 100 among the *Ways to Wellness* group. These scores are both categorized as “surviving” according to the WHO-5 scale.

After eight weeks, we saw a significant improvement in wellness among the individuals in the *Ways to Wellness* group from baseline to the end of the study, ($p = 0.0259$). We did not see this significant improvement in the Primary Care group at the Oakdale clinic ($p = 0.112$). These findings align with the WHO's definition that states health is multidimensional and relies on overall well-being. The findings support our hypothesis that the health of individuals is improved when the focus is on all aspects of well-being rather than isolated symptoms of illness. Our data show that those who received integrative and multi-dimensional health services in addition to tertiary care services saw a significant improvement in their wellness at eight weeks compared to baseline. Those who relied on treating symptoms of illness did not benefit from a significant improvement in wellness over the course of the study.

Our study is unique in that we were able to utilize the proximity of *Ways to Wellness*, its connection to the HealthEast Care System, and the diversity of their programs in order to examine within group improvements over time among two related but distinct groups: those receiving only traditional primary care medical services and those receiving comprehensive and integrative preventative health services in addition to traditional tertiary care. Our results provide evidence for the need to modify the way health services are sought after and provided in the United States. The WHO's definition of health encompasses physical, mental and social well-being, yet medical treatment continues to be focused on the physical symptoms and the treatment of disease rather than the prevention of it. In order to see a significant improvement in health, we must address all components of well-being and prevent the onset of lifestyle-related chronic illness. More hospital systems should work in tandem with preventative healthcare providers and programs like *Ways to Wellness* so that patients can utilize a variety of integrative services in

order to maintain health and well-being in each of the five dimensions that Rath and Harter (2010) specify.

We also found a correlation between reported overall health during the last year and well-being scores, indicating that participants who had higher well-being scores had better health. These findings further connect general well-being to superior physical health. Additionally, we found that patients at the HealthEast Oakdale clinic had a more favorable attitude toward their doctor compared to clients at *Ways to Wellness*. This result may indicate many things. One possibility is that the act of seeking services from preventative health programs is related to a patient's attitude toward their primary care doctor. This should be considered when designing effective preventative health programs that compliment primary care services and are accessible to the community.

The two notable limitations of this study are its sampling method and sample size. Because it was a convenience sample of participants rather than a randomly selected group, we had less control over potential confounding factors. However, we were conscious of that in our analyses and controlled for age, gender, attitude toward the primary care doctor, and overall health over the last year using multivariate regression models. We recognize that the demographic information collected was limited and that there may be other potentially confounding factors that we did not gather information on. Specifically, it would have been helpful to gather information from the Oakdale group on preventative health services that they receive outside of the HealthEast Care System.

The two groups were systematically different at baseline in that the *Ways to Wellness* group was paying out of pocket for private preventative health services. It may have been beneficial that the participants in this study were not randomly selected because it painted an

accurate and more generalizable picture of the people who chose and were able to utilize *Ways to Wellness* in addition to primary care services. However, because the two groups were not randomized at baseline, we were unable to make between group comparisons over time due to the potential systematic differences between people who received services from their primary care doctor and people who received primary care services in addition to preventative health services.

Now that a cross-sectional, observational snapshot of improvement in well-being among people engaging in an integrative health program and primary care has been established, future research should focus on random assignment of participants into a primary care plus preventative care group and versus only a primary care group in order to make between group comparisons.

This study could have benefited from a larger baseline sample size and increased participation from the sample at each follow up time. Follow up time point one had about a 35% response rate, time point two a 15% response rate and follow up three an 8% response rate. Therefore, directions for future research, in addition to randomization, would be increasing the baseline sample and finding methods to increase participation at each follow up time. Other future directions would be collecting more information at baseline regarding participant health status and reason for seeking healthcare services. Half of the Oakdale participants indicated “another reason” other than “a check up”, “a chronic issue”, or “I got sick recently” as their purpose for seeing their doctor. It would be helpful to know what these “other reasons” were and how they relate to patient well-being.

Given the limited amount of time we had with each study participant, the WHO-5 served as an easy to use, quick, and highly valid measure for capturing individual well-being. The content, construct, criterion-related validity and consistency reliability of the WHO-5 have been

tested and the measurement has been deemed a highly valid and reliable measurement for well-being. Future research examining the potential impact of preventative health programs on overall well-being would benefit from collecting the WHO-5 in conjunction with additional information regarding each domain of well-being .

Because of the high rates of people suffering from preventable chronic illness in the United States, we argue that the current model of tertiary care is not as effective as it could be. Rath and Harter (2010) provide a strong argument for why healthcare services should instead be focused on “well care”. In this study, we provide baseline data on patients seeking tertiary care from their doctors and clients seeking “well care” from a preventative health facility. While larger, random samples are needed, our data show preliminary support for the efficacy of preventative health and wellness services as a means of improving health and well-being beyond isolated tertiary care. We argue that preventative health and wellness techniques should be integrated into primary care and hospital settings as a strategy for improving the health of a sick patient and preventing the recurrence of illness.

Table 1: Description of characteristics of *Ways to Wellness* and Oakdale sample

Characteristic	W2W Baseline N = 95	Oakdale Baseline n = 95	W2W 2 weeks n = 30	Oakdale 2 weeks n = 38	W2W 4 weeks n = 11	Oakdale 4 weeks n = 15	W2W 8 weeks n = 10	Oakdale8 weeks n = 7	p-value differences b/w groups @ baseline
Age (years), mean	48.4	44.6	49.3	3.5	48	42.3	52.9	44.6	P = 0.081
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	
Sex									P = 0.0002
Female	70(73.3)	88(92.6)	23(76.7)	36(94.7)	9(81.8)	14(93.3)	6(75.0)	7(100.0)	
Overall health in last year									P = 0.561
Excellent	13(13.7)	16(16.8)	6(20.0)	8(21.1)	1(9.1)	4(26.7)	1(12.5)	1(14.3)	
Good	53(55.8)	49(51.6)	20(67.7)	21(55.3)	9(81.8)	10(67.7)	6(75.0)	5(71.4)	
Poor	7(7.4)	4(4.2)	0(0)	2(5.3)	0(0)	1(6.7)	0(0)	0(0)	
Terrible	2(2.1)	0(0)	1(3.0)	0(0)	0(0)	0(0)	0(0)	0(0)	
Doctor help lead fulfilling life									P < .0001
Definitely yes	28(29.8)	11(11.6)	6(20.0)	3(7.9)	7(63.3)	2(13.3)	3(37.5)	1(14.3)	
Probably yes	48(51.1)	43(45.3)	19(63.3)	20(52.6)	2(18.2)	5(33.3)	3(37.5)	2(28.6)	
Not sure	15(16)	18(18.9)	3(10.0)	5(13.2)	2(18.2)	2(13.3)	2(25.0)	1(14.3)	
Probably not	(2.2)	16(16.8)	2(6.7)	6(15.8)	0(0)	4(26.7)	0(0)	2(28.6)	
Definitely not	1(1.1)	7(7.4)	0(0)	4(10.5)	0(0)	2(13.3)	0(0)	1(14.3)	
Unadjusted WHO-5 Score	62.52	65.04	67.24	70.97	75.25	77.14	79.43	79.60	P = 0.188
Thriving	7(7.6)	4(4.2)	3(16.7)	2(5.3)	2(18.2)	2(13.3)	3(37.5)	1(14.3)	
Surviving	66(71.6)	75(79.0)	22(73.3)	32(84.2)	9(81.8)	13(86.7)	5(62.5)	6(85.7)	
Struggling	17(18.5)	14(14.7)	5(10.0)	3(7.9)	0(0)	0(0)	0(0)	0(0)	
Suffering	2(2.17)	2(2.1)	0(0)	1(2.6)	0(0)	0(0)	0(0)	0(0)	

Figure 1: Oakdale reason for visit

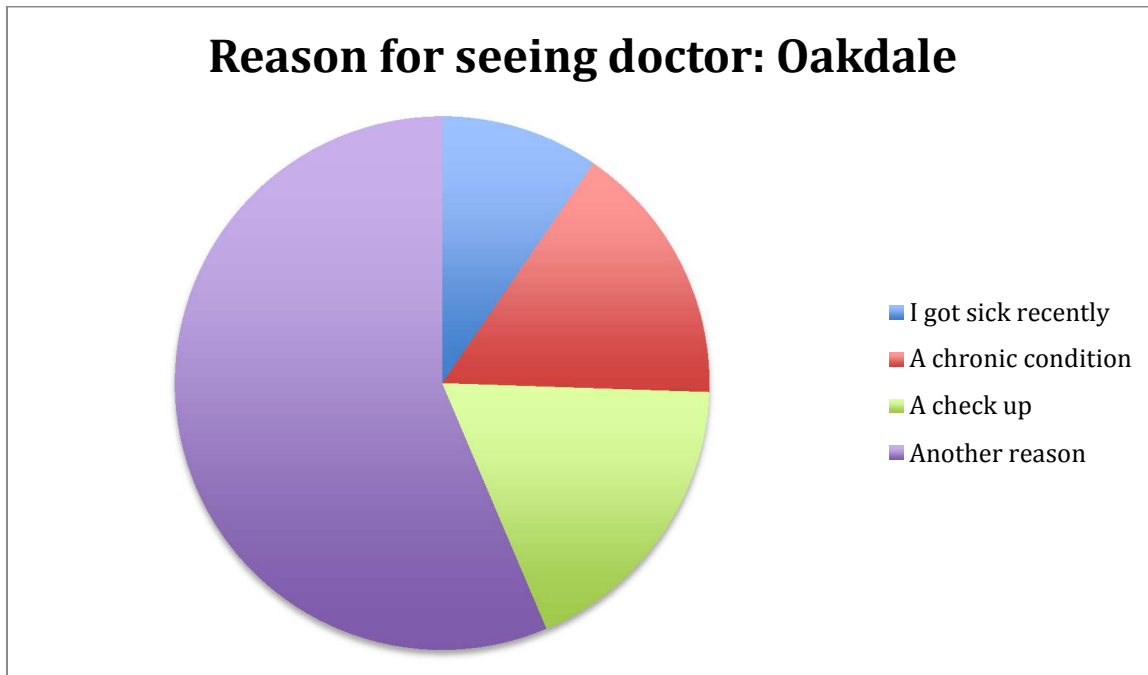


Figure 2: Ways to Wellness reason for visit

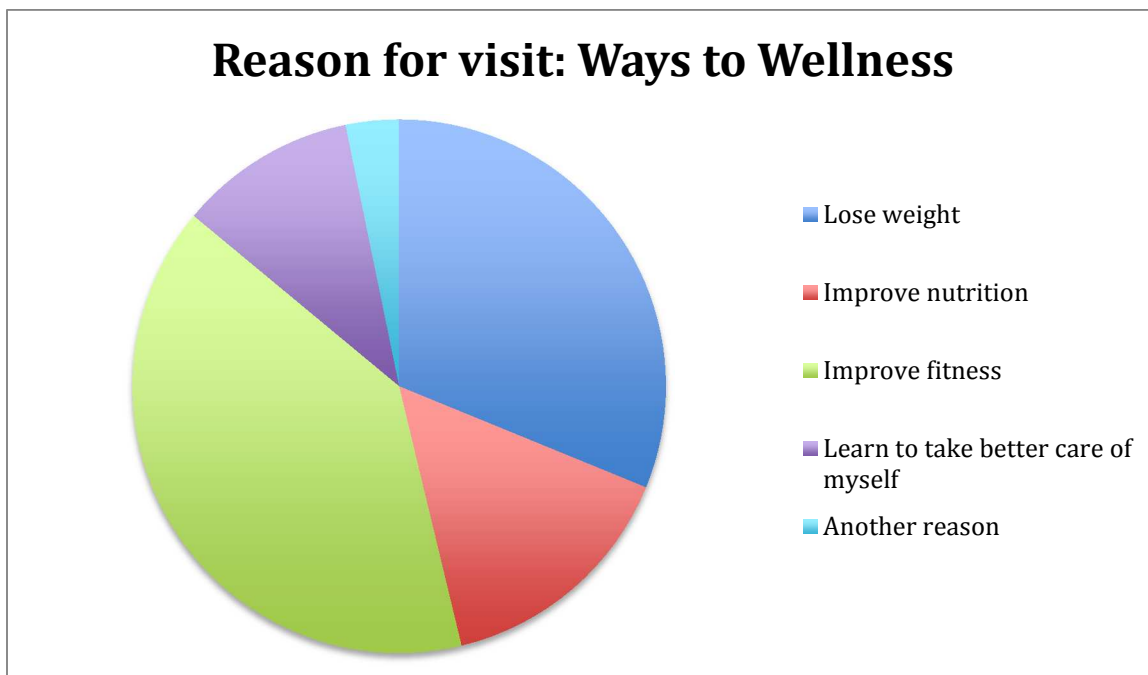
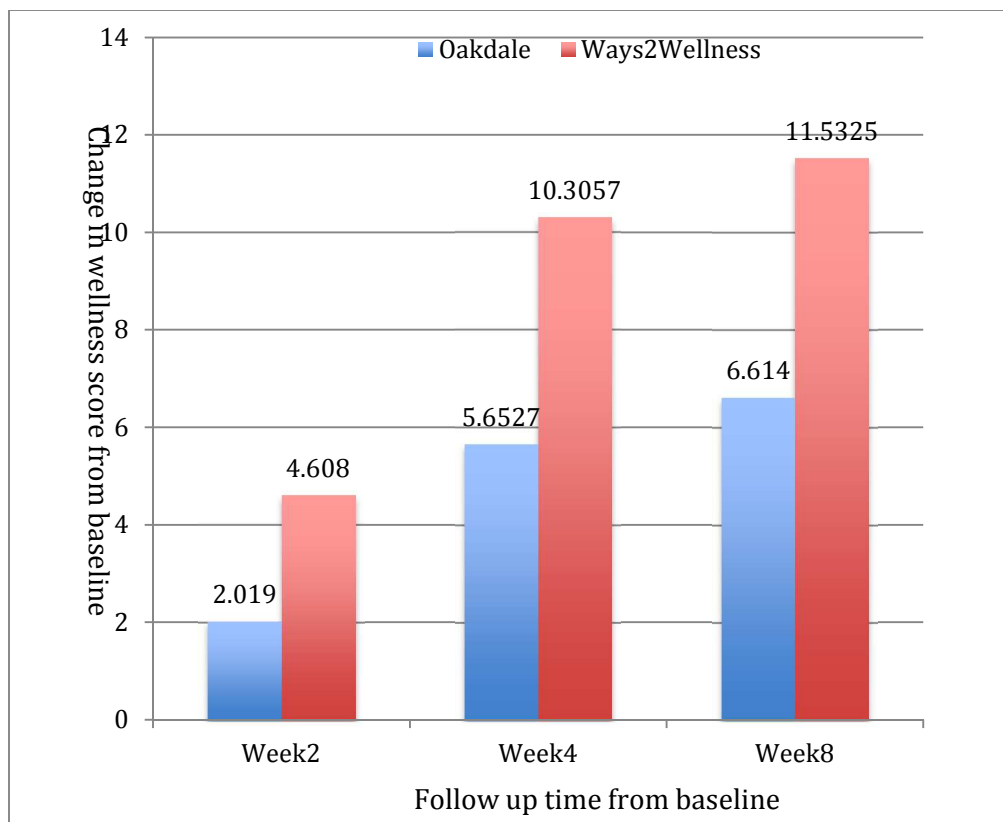


Table 2: Change in wellness score across both groups and for each group, adjusted for age, attitude toward doctor, overall health, and gender.

	Overall change across time	2 weeks follow up compared to baseline	4 weeks follow up compared to baseline	8 weeks follow up compared to baseline
Oakdale change in wellness score compared to baseline	1.35, p = 0.2669	2.02, p = 0.428	5.65, p = 0.117	6.61, p = 0.1120
W2W change in wellness score compared to baseline	4.15, p = .0100	4.61, p = 0.064	10.31, p = 0.0046	11.53, p = 0.0259

Figure 3. Wellness score at each time point for both groups compared to baseline wellness.



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