The Use of SMART Goals to Create Attainable Health Actions at Community Health Screenings

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Research

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Abstract

Background

Frontera de Salud is a student-run, interprofessional health organization that delivers primary care to underserved populations in South Texas. The purpose of this project was to evaluate the effectiveness of, and longitudinal adherence to, SMART (specific, measurable, attainable, realistic, time bound) goals created with clients during the Frontera counseling session.

Methods

Prior to a trip, Frontera personnel received training on developing SMART goals. During the counseling session of the health screening, after a client had undergone tests to measure blood sugar and lipids, a Frontera counselor would create a personalized SMART goal with the client. Several months after the initial health screening, the Frontera client was contacted via phone call to discuss adherence to their SMART goal.

Results

Of a sample of 150 client records, 58 (38.7%) of those clients were able to be reached via phone call. Of those 58 clients, 38 (65.5%) reported adherence to the SMART goal created during their Frontera counseling session. For those 38 clients, 18 had a diet-related goal (47.4%), 3 had an exercise-related goal (7.9%) and 13 (34.2%) had a goal that encompassed both diet and exercise.

Conclusions

Among clients contacted for follow-up, almost two-thirds reported adherence to their SMART goal. The most efficacious goals were diet-related. Of concern, only 38.7% of clients were able to be reached for follow-up.

Introduction

Frontera de Salud is a student-run, interprofessional health organization that delivers primary care to underserved populations in South Texas. Its mission is five-fold: (1) to deliver primary care to underserved populations of South Texas, (2) to further the clinical and cultural competencies of health professions students, (3) to encourage students to reflect on the profession of health care as a moral practice, (4) to offer an opportunity for students of various disciplines to work together for a common cause, and (5) to educate and raise awareness of medical ethics and humanitarian causes in the community (Salud, 2019b). In 2019, the Frontera de Salud chapter based out of the Long School of Medicine at the

University of Texas Health Science Center in San Antonio, Texas reached over 1,500 people, performing health screenings in San Antonio, Corpus Christi, Laredo, Eagle Pass, and McAllen, Texas (Salud, 2019a).

These areas have a high prevalence of chronic health conditions such as diabetes, hypertension, and obesity that are known to negatively impact quality of life as well as place additional burden on the health care system secondary to long-term sequelae (Elliott, 2003; Zhuo et al., 2014). Furthermore, the patient population of these areas is plagued by a lack of health insurance. Though Bexar County (San Antonio) has an estimated uninsured rate of only 16.5% and Nueces County (Corpus Christi) is approximately 19% uninsured, Webb County (Laredo) is 28.6% uninsured, Hidalgo County (McAllen) is 31.2% uninsured, and Maverick County (Eagle Pass) is 27% uninsured (TexasMedicalAssociation, 2017; UnitedStatesCensusBureau, 2018). This dearth of health insurance creates additional barriers to the delivery of healthcare and appropriate management of these chronic health conditions.

Frontera de Salud health screenings collect demographic information and measure several values (including blood pressure, blood sugar, and lipid profile) before culminating in a personalized counseling session. For 2019, these counseling sessions were adjusted to include the development of SMART (specific, measurable, attainable, realistic, time bound) goals. A strategic planning session performed at the beginning of 2019 identified the implementation of SMART goals in Frontera counseling sessions as an organizational priority in order to motivate Frontera clients to pursue healthy activities and enhance adherence to those activities. SMART goals have been shown to increase self-efficacy among patient populations and improve adherence to goals created during health counseling sessions (Giroux et al., 2014; Swanson, 2016). The purpose of this project was to evaluate the effectiveness of, and longitudinal adherence to, SMART goals created with clients during the Frontera counseling session.

Methods

Training of Frontera de Salud Personnel

Prior to an event, Frontera personnel received training on measuring blood pressure, blood glucose, and a lipid panel. This training session also went over normal values for each screening test and the appropriate course of action to take should a client have a value that was grossly abnormal. For example, if the first blood pressure reading came back as 190/110 and the patient endorsed new onset blurry vision (a presentation concerning for hypertensive emergency), they were instructed to repeat the blood pressure measurement with the automatic cuff, then take a manual blood pressure, and then report these values to the board-certified physician overseeing the screening. They were then provided with the equipment that would be available at the health screening to practice using the blood pressure cuffs, using the lancet and glucometer, and collecting a sufficient amount of blood in the capillary tube for the lipid panel.

In addition to receiving training regarding the standard screening tests, personnel also received training on the development of SMART goals. The concept of SMART (specific, measurable, attainable, realistic,

time bound) goals was introduced, and personnel were split into pairs in order to practice creating SMART goals with their partner. These goals were reviewed by Frontera officers and appropriate feedback was provided.

Frontera de Salud Health Screening

At a Frontera health screening, patient information was collected, including gender, age, height and weight (used to calculate BMI), smoking status, known comorbid conditions, and phone number. After collecting demographic information, blood pressure, blood sugar, and lipid panel were measured and recorded. During the counseling session of the health screening, after a client had undergone tests to measure blood sugar and lipids, a Frontera counselor would create a personalized SMART goal with the client. SMART is a mnemonic, as mentioned previously, standing for goals that are: specific, measurable, attainable, realistic, and time bound. The goals set with clients were individualized – for example, some clients indicated financial ability to purchase more fruits and vegetables to incorporate those foods into their diet, other clients lived in neighborhoods or had access to recreational spaces where they could go walking or running. The goals set with clients were a reflection of their circumstances and what they could realistically change to improve their health. Examples of SMART goals set with Frontera clients can be seen in Table 1.

Table 1
Examples of SMART goals set with Frontera de Salud clients.

SMART Goal Category	Sample Goal
Diet	Eat an extra serving of vegetables three times a week for the next three weeks.
Exercise	Exercise three times per week – walking or running for thirty minutes – for the next month.
Diet and Exercise	Walk fifteen to twenty minutes per day and add three to four servings of vegetables to diet per week for the next month.
Weight Loss	Lose five pounds over the next month by eating smaller portions at meals (calorie deficit).
PCP Follow-up	Glucose high on screening, make an appointment with your primary care physician to evaluate and develop care plan.
Medication Adherence	Known diagnosis of diabetes but not taking medications regularly, encourage to take medications as indicated by primary care physician.
Alcohol Use	Watch the clock while drinking and try to limit intake to no more than one beer per hour.

Client Follow-up

A random sample of Frontera clients from all five service locations was chosen over the course of the year (2019). Several months (2–3 months) after the initial health screening, Frontera clients were

contacted via phone call to discuss adherence to their SMART goal. If the client reported adherence to their goal for a one-month period (or longer), they were classified as having achieved their goal.

Results

The demographic information collected at health screenings was used to characterize the client population (see Table 2). The majority of Frontera clients were female (n = 110, 73.3%) with a relatively even age distribution (20.0% were 30 years of age or younger, 38.7% were 31 to 49 years of age, and 36.7% were 50 years of age or older). Over half of clients were obese (n = 82, 54.7%), of which a not insignificant proportion (n = 21, 14.0%) were morbidly obese, and only 14.0% (n = 21) had a BMI within the normal range. There was some discrepancy between client-reported prevalence of comorbidities and measured blood pressure and blood sugar values. For example, 28 (18.7%) clients endorsed a diagnosis of hypertension, but 38 clients were found to have a systolic blood pressure (SBP) value greater than or equal to 140 mmHg and 21 clients were found to have a diastolic blood pressure (DBP) value greater than or equal to 90 mmHg. Fourteen clients were found to have both a SBP greater than 140 mmHg and a DBP greater than 90 mmHg, thus 45 (30.0%) clients were found to have an elevated blood pressure (systolic or diastolic) at the time of screening (diagnosis of hypertension requires at least two separate readings over a period of time). Of those with a pre-existing diagnosis of hypertension, 13 clients were found to have a SBP greater than or equal to 140 mmHg and 10 clients were found to have a DBP greater than or equal to 90 mmHg (8 clients had an elevated SBP and DBP). Thus, 30 (66.7%) of the 45 clients found to have an elevated blood pressure reading had no prior diagnosis of hypertension. A similar trend was observed for blood sugar readings. Fifty-one clients were found to have a blood sugar greater than 126 mg/dL and 17 were found to have a blood sugar greater than 200 mg/dL. With incomplete information on fasting status, preference was given to the 200 mg/dL cutoff. Of the 17 clients with elevated blood sugar readings, 9 had a pre-existing diagnosis of diabetes. Thus, 8 (47.1%) of the 17 clients found to have an elevated blood sugar reading had no prior diagnosis of diabetes.

Table 2
Demographic characteristics of the sample client population.

Demographic variables	Number (<i>N</i> = 150)	Percentage
Gender		
Male	40	26.7%
Female	110	73.3%
Age		
≤ 30	30	20.0%
31–49	58	38.7%
≥ 50	55	36.7%
BMI		
< 25.0	21	14.0%
25.0 to < 30.0	42	28.0%
≥ 30.0	82	54.7%
Smoking Status		
Yes	17	11.3%
No	113	75.3%
Unknown	20	13.3%
Comorbidities		
Diabetes Mellitus	17	11.3%
Hypertension	28	18.7%
Hyperlipidemia	15	10.0%
Coronary Artery Disease	3	2.0%
Thyroid Disorder	7	4.7%
Malignancy (former, current)	2	1.3%
Mental Health (Depression, Anxiety)	4	2.7%
Asthma	3	2.0%
Chronic Kidney Disease	1	0.7%

Moving on to the counseling session, clients were walked through their screening measurements. The meaning of each number was explained and SMART goals were created to address concerns identified by the screening tests. Goals set with clients pertained to diet, exercise, weight loss, alcohol use, medication adherence, and PCP follow-up. The random sample of 150 clients with 150 individual goals included 121 valid phone numbers. Of those 121 clients included in the random sample who provided a valid phone number for follow-up, 58 (47.9%) were able to be contacted for follow-up. Thirty-eight (65.5%) of those 58 clients reported adherence to the SMART goal created during their counseling session. The majority of goals created with clients from the total sample were related to diet ($n = 63$, 42.0%), exercise ($n = 22$, 14.7%) or diet and exercise ($n = 38$, 25.3%). The distribution of goals among the cohort with which follow-up was able to be achieved was comparable to the total random sample with 27 (46.6%) diet-related goals, 6 (10.3%) exercise-related goals, and 17 (29.3%) goals related to both diet and exercise (see Table 3). The majority of efficacious goals (among the cohort with which follow-up was able to be achieved) were related to diet ($n = 18$ of 27, 66.7%) or diet and exercise ($n = 13$ of 17, 76.5%). Of note, among the clients with a goal focused on both diet and exercise, 3 were able to achieve only the diet portion of their goal and 4 were able to achieve only the exercise portion of their goal. Thus, only 6 of the clients who created a goal with both diet and exercise components were able to achieve the entirety of the goal, but those 7 clients who were able to achieve a portion of the goal were still classified as having achieved the goal in its entirety. See Table 1 for specific examples of goals set with clients in each category.

Table 3

Characterization of the goals set among the total cohort, goals set among the group with which follow-up was able to be achieved, and goals (among the follow-up cohort) that clients reported adherence to.

SMART Goal Category	Total Cohort No. (%) goals set ($N = 150$)	Follow-up No. (%) goals set ($N = 58$)	Follow-up No. (%) goals achieved ($N = 38$)
Diet	63 (42.0%)	27 (46.6%)	18 (47.4%)
Exercise	22 (14.7%)	6 (10.3%)	3 (7.9%)
Diet and Exercise	38 (25.3%)	17 (29.3%)	13 (34.2%)
Diet only			3
Exercise only			4
Weight Loss	15 (10.0%)	7 (12.1%)	3 (7.9%)
PCP Follow-up	8 (5.3%)	0 (0.0%)	0 (0.0%)
Medication Adherence	3 (2.0%)	1 (1.7%)	1 (2.6%)
Alcohol Use	1 (0.7%)	0 (0.0%)	0 (0.0%)

Finally, a Pearson's Chi-Square test was performed with the follow-up group data (n = 58) to evaluate if certain goals (i.e. diet-related, exercise-related) were more efficacious than other goals by comparing rates of goals set (n = 58) versus goals achieved (n = 38). Pearson's was found to be 0.802 (p = 0.938), indicating no statistical significance in difference between type of goal set and type of goal achieved in this client population.

Discussion

Prior to 2019, the Frontera counseling session was a time to go over screening results with clients and encourage them to adopt habits meant to mitigate any abnormal findings identified via screening. Health-related goals were set with some clients, but it was not a standardized process and they were not SMART goals. It was also a time to connect clients with location-specific resources meant to facilitate the provision of healthcare for those with inadequate funds or lack of health insurance. For example, the Indigent Program/Medical Financial Assistance Program in Maverick County (Eagle Pass) provides medical financial assistance as a function of need (MaverickCountyHospitalDistrict). Following a strategic planning session at the beginning of 2019, the organization identified the implementation of SMART goals during the counseling session as a top priority for the betterment of client health.

SMART goals have been proven to improve self-efficacy in diabetic populations, as well as in other environments (e.g. students in academic environments) (Giroux et al., 2014; Lawlor, 2012). There is greater gravity to setting a goal of 'I will walk in my neighborhood for 30 minutes, 3 times a week for the next 4 weeks' rather than 'I will try to walk more.' Setting specific time periods and deadlines helps give form to the typical amorphous diet-related and exercise-related goals set during counseling sessions (i.e. 'I will eat less junk food'). This creates much-needed organization and structure as patients attempt to make life-altering changes that are often quite difficult to maintain, let alone initiate.

The majority of goals created with clients were either diet-related or exercise-related (or both). This was appropriate as the chronic health conditions this population encounters (i.e. hypertension, diabetes, obesity) can often be partially addressed by diet and exercise interventions. For hypertension, the DASH (Dietary Approaches to Stop Hypertension) diet, a diet which is rich in fruits, vegetables, and low-fat dairy foods, has been found to be effective as a first-line therapy for stage 1 isolated systolic hypertension (Moore, Conlin, Ard, Svetkey, & Group, 2001). The DASH diet has also been found to be an effective nutritional strategy to prevent cardiovascular disease in hypertensive individuals (Siervo et al., 2015). Similarly, the Mediterranean diet has been touted as having a potentially beneficial effect on type 2 diabetes prevention and treatment (Georgoulis, Kontogianni, & Yiannakouris, 2014). On the other side of the coin, "exercise remains a cornerstone therapy for the primary prevention, treatment, and control of [hypertension]" and physical activity has been recognized as a 'vital component' in the prevention and management of type 2 diabetes (Association, 2004; Pescatello et al., 2004). Thus, implementing diet and exercise-related goals had the potential to positively impact client health in a significant way.

Additionally, these health screenings attracted a significantly greater proportion of women as compared to men. Anecdotally, the men that did attend the health screenings were often brought (sometimes against their will) by their wife or girlfriend. This prompted recognition of a potential demonstration of *machismo*. Machismo, though used to personify a variety of connotations, is often used to describe a man that is tough, strong, non-emotional, and with no need to attend a community health screening (Fragoso & Kashubeck, 2000; Getrich et al., 2012). This observation serves as a testament to the importance of understanding the cultural context in which healthcare is being provided and adapting the provision of that healthcare to adequately reach the desired population.

Overall, the initial findings of this project are promising, supporting the continued use of SMART goals in Frontera counseling sessions. Among those clients contacted for follow-up, almost two-thirds reported longitudinal adherence to their SMART goal(s). Most goals set with clients were diet-related, closely followed by exercise-related goals. However, no one type of goal was found to be more efficacious in longitudinal adherence than other types of goals. This supports the development of SMART goals with a focus chosen by the client, rather than targeted towards a specific health behavior (i.e. diet, exercise) by a Frontera counselor. The implementation of SMART goals also provided greater structure to the counseling session, imparting skills that students can use during their future training and, ultimately, practice.

Of concern, only 47.9% of clients in this sample who provided a valid phone number (58 of 121) were able to be contacted for follow-up. Personnel at Frontera events should communicate the follow-up process to clients and encourage clients to share functional phone numbers, should they wish to be contacted. Moving forward, follow-up should be targeted towards clients with concerning test results and/or no source of primary care to ensure utilization of location-specific health care resources recommended to clients during Frontera health screenings.

Limitations

This project has several limitations. First, the follow-up results were dependent on client-reported outcomes. With no in-person follow-up, there was no way to verify if clients had actually been adhering to their SMART goal. Second, follow-up was only able to be achieved with a small portion of the client population. Though the random sample of clients was meant to represent approximately 10% of the total population served during 2019 (150 out of 1,500), follow-up was only achieved with 58 (38.7%) of those 150 clients. Though not certain, there is the potential that those clients who answered the phone were willing to talk about their goal adherence because they had actually made progress toward their goal (i.e. self-selection bias). In other words, clients who had not adhered to their SMART goal were less likely to want to talk about their progress, so they declined to continue when called for follow-up.

Conclusions

Among clients contacted for follow-up, almost two-thirds (38 of 58, 65.5%) reported adherence to their SMART goal. The most efficacious goals were diet-related (n = 18 of 27, 66.7%) as well as diet and exercise-related (n = 13 of 17, 76.5%). Of concern, only 47.9% of clients in this sample who provided a valid phone number (58 of 121) were able to be contacted for follow-up. Moving forward, follow-up should be targeted towards clients with concerning test results and/or no source of primary care to ensure utilization of location-specific health care resources recommended to clients during Frontera health screenings.

Abbreviations

SMART

specific, measurable, attainable, realistic, time bound

BMI

body mass index

SBP

systolic blood pressure

DBP

diastolic blood pressure

PCP

primary care physician

DASH

dietary approaches to stop hypertension

Declarations

Ethics approval and Consent to participate: This study was evaluated by the UT Health San Antonio Institutional Review Board and was determined to not require IRB approval as it was not regulated research as defined by DHHS regulations at 45 CFR 46 and FDA regulations at 21 CFR 56 (Protocol Number: HSC20190727N). All participants provided verbal consent prior to health screening participation.

Consent for publication: No images nor identifying details of participants are included in this paper.

Availability of supporting data: Data included with submission.

Competing interests: The authors have no relevant financial or non-financial interests to disclose.

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Supplementary Files

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