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A Pilot Study to Assess the Readiness and Barriers as Correlates to Participation in Rural
Worksite Health Promotion Programming

By

Kayte Tranel

A THESIS

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Under the Supervision of Professor Kaye Stanek Krogstrand

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A PILOT STUDY TO ASSESS THE READINESS AND BARRIERS AS
CORRELATES TO PARTICIPATION IN RURAL WORKSITE HEALTH
PROMOTION PROGRAMMING

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University of Nebraska, 2011

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An increased risk of lifestyle-related conditions (hypertension, type 2 diabetes, cardiovascular disease and some forms of cancer) is associated with overweight and obesity, which affect approximately two in three American adults (Centers for Disease Control and Prevention [CDC], 2009). Worksite health promotion programming (WHPP) may be effective for reducing disease risk. Reaching adults in the worksite seems logical considering most spend approximately 40 hours each week in that setting. WHPP is linked to improved effectiveness for promoting healthy lifestyle behaviors, but often struggles with low participation and high attrition rates. Research regarding barriers to WHPP and physical activity is available, but information to aid development of more comprehensive worksite programming, including nutrition and WHPP in underserved rural areas, is lacking. Developing WHPP on perceived benefits and barriers (constructs of the Health Belief Model) and the Stages of Change (from the Transtheoretical Model)

can help practitioners tailor programs toward moving participants toward the action and maintenance stages. A survey to assess perceived benefits and perceived barriers to regular physical activity and healthful eating habits as well as qualitative questions to assess placement on the Stage of Change was administered to employees of a critical access hospital in a rural community. Results showed that perceived benefits and perceived barriers were correlated significantly ($p < .05$, $r = .270$), indicating that as a greater number of benefits to participating in regular physical activity and healthful eating habits were mentioned, they also identified a greater number of barriers. In addition, more barriers to healthful eating correlated significantly to more barriers identified for engaging in regular physical activity ($p < .05$, $r = .312$). Both barriers to regular physical activity and healthful eating habits were negatively correlated to placement on the Stages of Change continuum, indicating that more identified barriers corresponds to precontemplative, contemplative and preparatory behaviors, rather than action and maintenance of desired behaviors. Further research focusing on determining factors that help individuals overcome perceived barriers and which psychosocial variables are associated with identifying more perceived benefits to engaging in physical activity and healthful eating may help improve the effectiveness of WHPP.

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A Pilot Study to Assess the Readiness and Barriers as Correlates to Participation in Rural Worksite Health Promotion Programming

Introduction

In 2009, overweight and obesity affected approximately two in three American adults (Centers for Disease Control and Prevention [CDC], 2009). These conditions have been correlated with several negative health consequences, including hypertension, type 2 diabetes, some cancers and coronary heart disease (CDC, 2009). Adults devote a significant amount of time to their respective occupations, spending approximately eight hours daily at the worksite. Worksite health promotion programming (WHPP) has shown its effectiveness in promoting healthy lifestyle behaviors. However, WHPP often struggles with low participation and high attrition rates. Research regarding behavior theory characteristics and barriers to participating in WHPP has been conducted with regard to physical activity. Research and knowledge of these same characteristics is lacking with regard to more comprehensive worksite programming, which includes nutrition. Even more concerning is the lack of information regarding factors of participation/non-participation in a rural worksite, which is typically underserved in many aspects of health and wellness. Through conducting an assessment of several constructs of the Transtheoretical Model of Behavior Change and perceived barriers (a factor recognized in the Health Belief Model), a better understanding of the population-specific characteristics can be developed and applied to planning more effective and successful WHPP in a rural worksite. Therefore, the purpose of this study was to

determine the population-specific perceived barriers and readiness to change that employees in a rural worksite face to participation in WHPP.

Chapter 1: Literature Review

Rural Worksite as Setting for Health Promotion in Underserved Areas

Worksites show potential as effective partners in health promotion, as most adults spend eight or more hours at work daily (Proper KI, Koning M, Van der Beek AJ, Hildebrandt VH, Bosscher FJ & van Mechelen W, 2003). They represent a site for dissemination of health and wellness information, as well as a social network to offer support. The effectiveness of worksite health promotion programs (WHPP) depends on a number of factors. Possibly the most important of these is the characteristics of the worksite population. Without a thorough knowledge of the population, health promotion efforts can lack effectiveness and be cost inefficient. In fact, this may be reflected in the fact that fewer than 50% of employees participate in WHPP offered at their worksite (O'Donnell, 2001). Companies have a financial interest in improving participation, as health care costs are the fastest growing expense for employers (McKinsey and Company, 2009).

The Rural Assistance Center (RAC), a government agency supported by the Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Services, provides communities with integrated access to health-related programs, funding and research. The RAC has identified the negative effects that geographic isolation has on the availability of health services. Health professionals and the availability of educational, preventive and treatment programs, as well as facilities, are typically lacking in rural settings. Lack of social support is often a barrier for rural residents in part due to geographical isolation (Rural Assistance Center, 2009).

Further evidence of rural-urban health disparities can be seen in even more mainstream health services. As cited by the Rural Assistance Center, these include shortages of primary care physicians, specialized health providers, delays in disease screening and diagnosis of cancer. Obviously, if these conventional health services are deficient, a more futuristic form of health care is underprovided, as well.

Factors Associated with WHPP Participation

Employees in rural areas may face a set of potential barriers specific to them. Still, they may be subject to barriers already described in most previous research. Previous research has attempted to identify determinants of participation in worksite health promotion programming. Robroek and colleagues (2009) conducted a meta-analysis of determinants of participation in WHPP, finding that age, gender, marital status, education level and income all play roles. The relationship between these variables and participation in WHPP varies considerably between studies, not pointing toward any characteristics as sure determinants of participation in WHPP.

Robroek and colleagues (2009) also looked specifically at a series of health-related factors and their influence on WHPP participation. Among those, weight, physical activity, smoking, cholesterol level, general health, blood pressure and nutrition were all considered. Findings of this research showed that there was not a strong correlation between healthier workers and higher participation rates.

Finally, Robroek and colleagues' meta-analysis (2009) looked at the relationship between income level and participation. Results showed higher participation rates for white collar or contract workers, and full-time employees. On the other hand, shift workers, who typically earn less, had the lowest participation rates. Using this income-

related participation data maybe be useful to WHPP in rural areas, as median family earnings are nearly \$14,000 less than those in urban areas (United States Department of Agriculture [USDA], 2009).

The inconclusive nature of the demographic and health-related variables' relationship to participation in WHPP leaves opportunities to examine other possible determinants of participation. Among those are variables related to behavior theories, including readiness to change and perceived barriers.

Determinants of WHPP Participation

A great deal of research has attempted to identify factors associated with participation and non-participation in WHPP geared toward increasing physical activity, while research regarding WHPP nutrition interventions is lacking. Barriers cited as preventing physical activity in previous research included low self-efficacy, lack of knowledge and social support, and too little time (Brown SA, 2005; Sallis JF, Hovell MF & Hofstetter CR, 1992; Bowles HR, Morrow JR, Leonard BL, Hawkins MP & Couzelis M, 2002; Fletcher GM, Behrens TK & Domina L, 2008). These findings may mirror the barriers associated with nutrition-related WHPP.

Further research has examined barriers to worksite physical activity program participation specific to blue-collar workers. These include lack of time, abnormal work hours, structure of the workday and the perception of such programming (Fletcher et al., 2008).

Factors Positively Associated with Physical Activity and Healthful Eating

Potential factors enabling participation in physical activity have also been identified. Among blue-collar workers, enablers included: self-motivation, social

support, being part of a group and having fun activities in which to participate (Fletcher et al., 2008). Many of the benefits and barriers that employees face to participating in physical activity interventions may be similar to those associated with nutrition interventions.

The limited previous research on the factors that influence participation in nutrition-related WHPP at blue-collar worksites has focused on external factors associated with participation. These external factors include the type of intervention offered, the way the intervention is offered and who leads the interventions. Most importantly, nutrition interventions have been received positively by blue-collar employees, even making them feel appreciated by those in management positions at their worksites (Lassen A, Bruselius-Jensen M, Sommer HM, Thorsen AV & Trolle E, 2006).

As previously mentioned, research regarding participation in physical activity WHPP has been studied to a greater extent than WHPP offered with a nutrition component. Research has provided information on individual (or population-specific) characteristics related to participation. Among these are barriers to participation, which vary widely among different populations. Both internal and external barriers play significant roles in non-participation and poor utilization of a worksite fitness center (Schwetschenau HM, O'Brien WH, Cunningham CJ & Jex SM, 2008). Barriers have included those variables that an individual sees as potential obstacles to engaging in a health behavior. Schwetschenau and colleagues (2008) showed that barriers play a significant role in utilization of a worksite fitness center and can be measured reliably to gain useful information to guide WHPP. This same principle can be applied to assessing barriers in nutrition WHPP, where research is clearly lacking.

Future Research and Interventions

It is known that the risk of developing diseases, namely cardiovascular disease and some cancers, can be reduced by a diet rich in fiber (including fruits and vegetables) and low in fat (National Research Council [NRC], 1989; United States Department of Health and Human Services [USDHHS], 1988). Interventions designed to promote this type of healthful eating may be an effective way to establish improved dietary habits. However, understanding the factors that influence food choice can be multidimensional and different for every population. Program planners must be able to understand the determinants of eating patterns in order to plan effective interventions. Several theories gleaned from psychology have been applied to determining dietary behavior (Glanz & Eriksen, 1993), including the Transtheoretical Model of Behavior Change (TTM). Barriers also have efficacy in helping plan WHPP, which will be addressed later. The TTM (also known as Stages of Change) states that individuals are at different stages of readiness to change or adopt a (health) behavior (Prochaska JO, Redding C & Evers K, 1997; Glanz K et al., 1994). Previous hypotheses have pointed toward using this model as a means to tailor interventions to individuals' stage of readiness, thus moving them more effectively toward behavior change (Prochaska JO, DiClemente CC & Norcross JC, 1992; Prochaska JL, Redding C, Evers K, 1997).

Application of the Transtheoretical Model

Traditionally, the Transtheoretical Model of Behavior Change (TTM) has been used in smoking cessation, alcohol abuse and lack of exercise. Over the last decade, TTM has been used in dietary Stages of Change with reference to dietary fat intake, fruit and vegetable consumption and fiber intake (Glanz K et al., 1994; Greene GW, Rossi SR,

Reed GR, Willey C & Prochaska JO, 1994; Curry SJ, Kristal AR & Bowen DJ, 1992; Brug J, Hopsers HG & Kok G, 1997; Sporny LA & Contento IR, 1995; Brug J & Van Assema P, 1995; Lechner L, Brug J, deVries H, Van Assema P & Mudde A, 1995). This research has shown that better eating habits are practiced by individuals in the later stages of change (action, maintenance) (Glanz et al., 1994; Greene et al., 1994; Curry et al., 1992; Brug J et al., 1997, Sporny LA & Contento IR, 1995; Brug J & Van Assema P, 1995; Lechner L et al., 1995; Rossi SR, Greene GW, Reed G, Prochaska JO, Velicer WF & Rossi JS, 1993).

As well as behavior theories, barrier assessment has been applied to nutrition health behaviors (fruit and vegetable consumption) outside the worksite. Campbell and colleagues (1998) used the TTM plus barriers appraisal to glean information useful to making behavior change interventions more successful in a mostly female African-American population. Identified barriers included cost, lack of fruit/vegetable preparation knowledge, disliking the taste and lack of time. Relating these barriers to the TTM showed that subjects in the contemplation stages were more likely to identify barriers to changing than those in the preparation, action or maintenance stages (Campbell et al., 1998).

The TTM has also been applied to behavior change in adults with chronic conditions. Readiness to change was correlated with various health conditions, including heart disease and diabetes. Those with heart disease had the greatest readiness to change, while individuals with diabetes had the lowest readiness to change (Boyle RG, O'Connor PJ, Pronk NP & Tan A, 1998). Correlating Stages of Change with demographic data, like diseases or conditions that affect the population being served, can help program planners

develop effective and successful interventions that help participants progress toward action and maintenance.

Targeting healthy eating behaviors in employees in a health care facility poses opportunities and challenges of its own. Previous research has attempted to improve healthy eating behaviors by increasing fruit and vegetable consumption. A number of factors, including stage of readiness to change, were assessed with regard to eating a low-fat diet, taking daily steps to achieve or maintain a healthy weight and eating five or more fruits and vegetables daily (Perez AP, Phillips MM, Cornell CE, Mays G & Adams B, 2009). Upon completion of the intervention to increase fruit and vegetable consumption, progression in the Stages of Change among participants was seen. For instance, from pre- to post-intervention, the percentage of participants in preparation fell from 42% to 27%, while the percentage in action/maintenance increased from 41% to 59%. Similar results were seen with Stages of Change regarding lower dietary fat intake. Twenty-nine percent and 49% were in the preparation and action/maintenance stages, respectively, at baseline. Upon completion, preparation-staged participants fell to 21%, while action/maintenance-staged subjects increased to 59% (Perez et al., 2009). This evidence makes it clear that taking the TTM into account can increase the effectiveness of an intervention in changing nutrition behaviors.

The Future of WHPP in Rural Settings

Although it is clear that appropriate programming can move participants along in the Stages of Change, it is necessary to apply the TTM to understand where in the spectrum of the stages of change a participant lies. Furthermore, awareness of perceived

barriers, a component of the Health Belief Model (HBM), may enhance participation in WHPP in a blue-collar, rural work environment.

Previous research in stages of change and perceived barriers is lacking with regard to participation in nutrition interventions. Even more deficient is the application of behavior models to WHPP in rural settings. In fact, rural populations are underserved in health and wellness. According to the Rural Assistance Center, barriers to wellness programming in rural areas are both cultural and structural (Rural Assistance Center, 2009). Cultural factors include eating more fat and calories and not following dietary recommendations. Structural factors related to overweight and obesity in rural areas include lack of nutrition education, decreased access to nutrition professionals and fewer wellness facilities.

Research Question, Hypothesis and Objectives

The research question for this study was: why is there a known lack of participation in an identified worksite wellness program located in a rural health care facility?

The hypothesis for this study was: nonparticipants had a lower level of readiness to participate and different perceived insurmountable barriers than participants.

Objectives:

The objectives of this study were to:

1. Identify differences in readiness to change between participants and non-participants in employees of a rural healthcare facility using the Transtheoretical Model;
2. Identify perceived barriers that differ between those groups;
3. Compare information regarding socioeconomic status (SES), family size and education level as they are related to participation and non-participation.

Chapter 2: Materials and Methods

After approval from the Institutional Review Board at the University of Nebraska-Lincoln (Appendix A) and the CEO of Memorial Community Health, Incorporated in Aurora, Nebraska (located in Hamilton County), data was gathered using a 20-item questionnaire that included descriptive questions developed from the Transtheoretical Model and quantitative questions regarding perceived barriers to participation in the wellness program at this facility. It was administered to 223 employees of the facility, which included a hospital, clinic and one long-term care facility in Aurora, Nebraska, as well as two satellite clinic locations in Clay Center, Nebraska and Harvard, Nebraska. Demographic data, including annual household income, marital status and completed education level were gathered. For employees of the facilities in Aurora, Nebraska, the survey was distributed during departmental staff meetings (long-term care staff, dietary staff, nursing staff, clinic staff, administrative council, pharmacy staff, laboratory staff, housekeeping and maintenance staff). At those staff meetings, the primary investigator distributed the survey and introductory letter (Appendix B), which explained that their participation was voluntary, there would be no consequences for choosing to not participate and that voluntary completion of the survey served as informed consent. Employees completed the survey during the allotted staff meeting time and returned the completed surveys (as well as the incomplete ones for those choosing not to participate) in a marked envelope to help maintain anonymity. For those employees at the satellite locations in Clay Center, Nebraska and Harvard, Nebraska, surveys were delivered via mail, with instructions to complete the survey anonymously and return via mail to the primary investigator. In planning for this study, low respondent rates (or completion of

the assessment tool) were a concern that could have resulted in a consequential lack of data. This obstacle was addressed by offering the chance for respondents to receive one of eight \$25 Aurora Chamber of Commerce Checks, to be awarded by random drawing.

Development of a questionnaire (Appendix C) to assess individual placement for regular physical activity and healthful eating habits on the Transtheoretical Model Stages of Change continuum first required defined quantities of each. Regular physical activity was defined as 30 minutes of moderate to vigorous activities on at least five days of each week and was mirrored after the Centers for Disease Control and Prevention recommendation for physical activity/exercise to achieve health benefits (CDC, 2011). Healthful eating habits were defined as low in total and saturated fat and getting at least five servings of fruits and vegetables daily, which mirrors the MyPyramid recommendations for servings of fruits and vegetables for most adults (USDA, 2011).

Reported participant placement on the Stages of Change continuum was determined using questions posed in succession from those aimed at assessing precontemplative behaviors to action/maintenance behaviors. Placement in precontemplation, contemplation and preparation, versus a later stage, was achieved by answering “no” to engaging in regular physical activity and/or healthful eating. Precontemplators were then separated from the contemplators and preparers by asking whether the participant has considered doing so; answering “yes” indicated that considering the said behavior had been done (a characteristic of contemplators and preparers), while not considering the behavior is a hallmark of precontemplators. Those in the action and maintenance stages were placed depending on their response to how long they had been engaging in regular physical activity and/or healthful eating habits;

those indicating participation for six months or fewer were considered to be in the action stage, while more than six months placed participants in the maintenance stage.

Next, perceived barriers to participation in worksite wellness programming was assessed using factors previously identified by Brown SA (2005), Sallis et al. (1992), Bowles et al. (2002), Fletcher et al. (2008) and Campbell et al. (1998), as well as factors associated with moving along the Stages of Change continuum. For instance, moving from contemplation to preparation to action involves acquiring knowledge, skills, self-efficacy and the necessary resources to engage in the specific behavior. Assessing which of these factors were most frequently cited as barriers can help worksite wellness practitioners design interventions to help eliminate those barriers and move participants along the continuum toward action and maintenance.

Perceived benefits to worksite wellness programming participation were modeled after research findings that social support, recognition for participation and external rewards (e.g. monetary compensation) are important components of maintaining a behavior. Social support from coworkers, family members and supervisors, rewards as contributions to health savings accounts and discounted health insurance premiums, and recognition from coworkers and supervisors were all assessed.

Overall outcomes of this study included determining readiness to participate in a worksite wellness program and barriers to this participation. Statistical analysis included frequencies, percentages, ranges and standard deviations of subjects into their respective Stage of Change, along with demographic information (marital status, socio-economic status (SES) and educational level attained). A correlation analysis was performed on the number of barriers and placement on the Stages of Change continuum.

Data was analyzed for correlations between the number of perceived benefits and perceived barriers to participation and responses to Stages of Change continuum placement. Response data was organized into an Excel spreadsheet. The first step in data analysis used Excel to determine response frequencies for questions with more than one possible answer (i.e. those assessing perceived benefits and perceived barriers). Excel spreadsheet data was then imported into Statistical Analysis Software (SAS) Version 9.2 by SAS Institute, Inc. located in Cary, North Carolina. SAS 9.2 was used to produce correlations between perceived benefits, perceived barriers and Stage of Change, as well as perceived barriers and participation in WHPP.

Possible barriers for engaging in regular physical activity

Lack of time

Lack of knowledge about physical activity

Lack of equipment or resources

Lack of support from family, friends, coworkers or employer

You do not believe that you can or are able to be physically active

You don't have any barriers to being regularly physically active

Figure 1. The Health Belief Model.

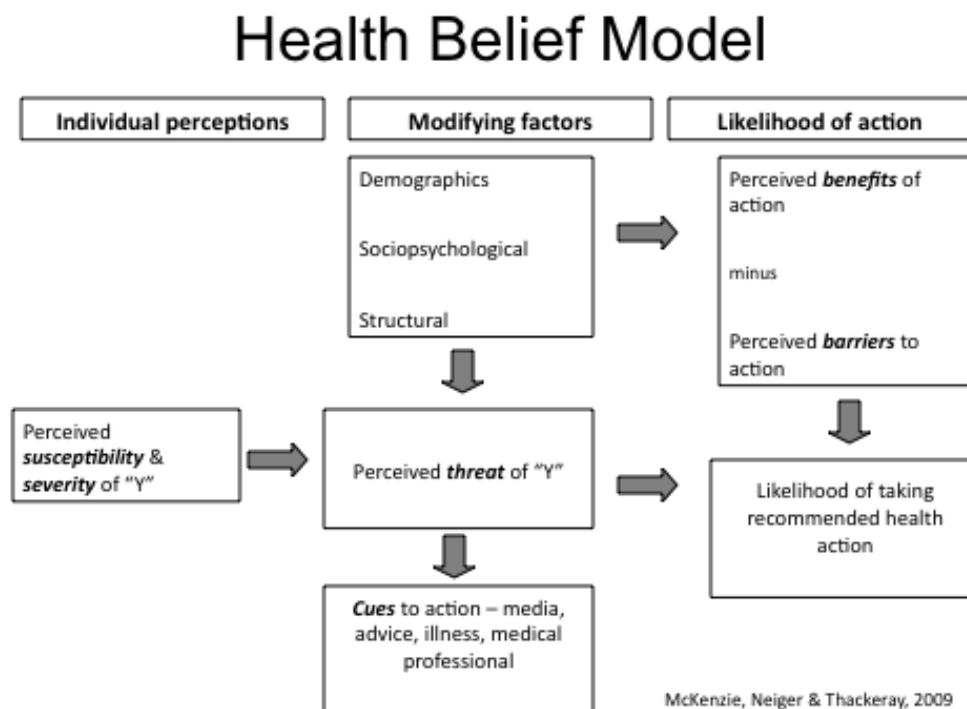
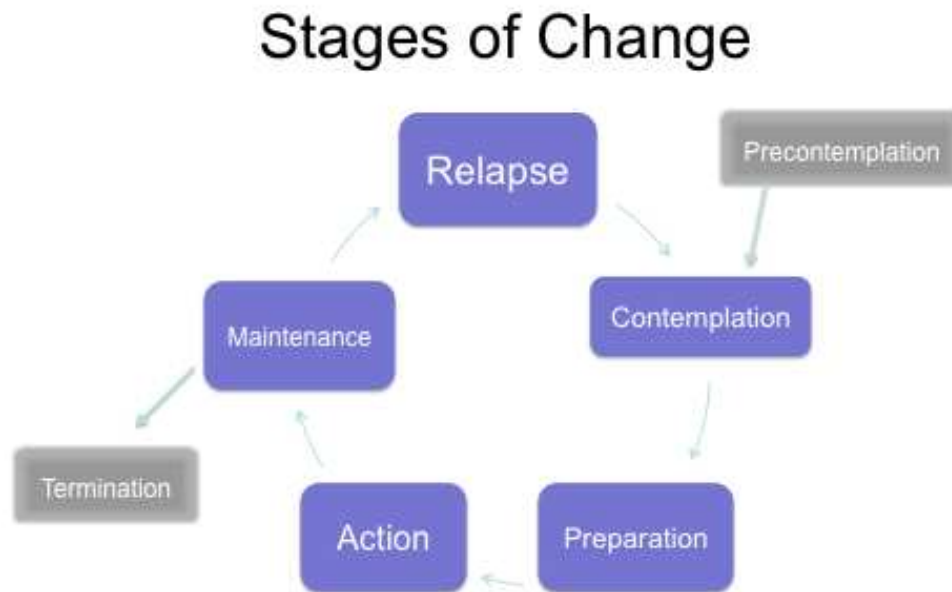


Figure 2. Transtheoretical Model.



Chapter 3: Results and Discussion

Two hundred twenty-three employees (and potential participants) were asked to complete the survey, 215 from the hospital, clinic and long-term care facility in Aurora, Nebraska, 99 (or 46%) did so, and of the eight total employees from the two satellite clinics, one completed the survey. Overall, 44.8% of employees participated. It was noted, anecdotally, that some chose not to complete the questionnaire because they were not comfortable reporting their income. It was also noted that of the respondents, 63% stated that they did not participate in WHPP.

Table 1. Distribution of employees and survey participants

Facility	Number Employees	Number who Participated	Percent of Employee Population
Memorial Community Health, Inc. Hospital, Clinic and Long-term Care	215	99	46
Satellite clinic (Harvard, Nebraska)	4	1	25
Satellite clinic (Clay Center, Nebraska)	4	0	0
Total	223	100	44.8

Demographic information regarding household income, household size, marital status and education is as follows: Over two-thirds, or 76% of respondents, were married, while 23% were single. Nine and seven-tenths percent (9.7%) reported household incomes before taxes of less than \$20,000 annually, 7.3% earned \$20,000 to \$29,999 annually, 12% earned \$30,000 to \$39,999 annually, 9.7% reported earning \$40,000 to \$49,999 annually, 15.8% earned \$50,000 to \$59,999 annually and 43.9% reported earning \$60,000 or more annually. The income bracket with the lowest reported participation included those in households earning \$20,000 to \$29,999 annually. Respondents in households earning at least \$60,000 annually appeared to participate in WHPP more than other income brackets.

Table 2. Annual reported household income distribution.

Income Bracket	Percent of Respondents	Percent Represented by WHPP Participants	Percent Represented by WHPP Non-Participants
<\$20,0000	9.7	4.8	4.8
\$20,000 - \$29,999	7.3	4.8	3.6
\$30,000 - \$39,999	12.1	4.8	7.2
\$40,000 - \$49,999	9.8	3.6	6.0
\$50,000 - \$59,999	15.9	3.6	13.3
≥\$60,000	43.9	22.9	20.5

Seven and two-tenths percent (7.2%) reported a household size of one, 51.5% reported two household members, while three-member households accounted for 12.4% of respondents, and 17.5%, 8.2%, 2% and 1% accounted for household sizes of four, five, six and seven members, respectively.

Table 3. Reported household size distribution.

Household size	Percent of Participants
1	7.2
2	51.5
3	12.4
4	17.5
5	8.2
6	2.0
7	1.0

Nineteen and three-tenths percent (19.3%) of respondents' highest education completed was a high school diploma or GED, 44% completed two years of technical school or college, 20% completed four years of college or earned a Bachelor's Degree and 16% complete more than four years of college.

Table 4. Reported attained education levels of respondents.

Education Level	Percent of Participants
High School Diploma or GED	19.4
2 years of technical school or college	44
4 years of college of Bachelor's Degree	20.4
More than 4 years of college	16.3

Seventy-six percent (76%) of respondents were married, while 23% reported being single. Those with higher incomes and more education tended to be staged in the action and maintenance stages of the Stages of Change continuum. In this case, existing in the action and maintenance stages is indicative of engaging in regular physical activity and healthful eating habits, thus a potentially lower risk of lifestyle-related chronic illness (e.g. type 2 diabetes, cardiovascular disease and some cancers).

Barriers identified by 99 participants are as follows: 64 identified lack of time, four identified lack of knowledge, 34 recognized lack of equipment or resources, 14 acknowledge lack of support and six stated that they were not able to be physically active. Sixteen participants stated that they did not have any barriers to being regularly physically active.

Table 5. Reported barriers for engaging in regular physical activity.

Barriers for engaging in regular physical activity	Number reporting barrier
Lack of time	64
Lack of knowledge about physical activity	4
Lack of equipment or resources	34
Lack of support from family, friends, coworkers or employer	14
You do not believe that you can or are able to be physically active	6
You do not believe that you have any barriers to being regularly physically active	16

Similar to the barriers identified for engaging in regular physical activity, lack of time was the most frequently cited barrier to engaging in healthful eating habits. Lack of self-efficacy (assessed by asking about one's perceived belief in his/her ability to engage in the said activity) was the least frequently cited barrier. Finally, nearly half of respondents stated that they did not have any barriers to eating healthfully.

Table 6. Reported barriers for engaging in healthful eating habits.

Barriers for engaging in healthful eating habits	Number reporting barrier
Lack of time	26
Lack of knowledge about healthful eating	16
Lack of equipment or resources	15
Lack of support from family, friends, coworkers or employer	14
You do not believe that you can or are able to eat healthfully	5
You do not believe that you have any barriers to eating healthfully	43

Perceived benefits and perceived barriers were correlated significantly ($p < .05$, $r = .270$), indicating that as participants identified a greater number of benefits to participating in regular physical activity and healthful eating habits, they also identified a greater number of barriers. More identified barriers to eating healthfully was significantly correlated to a higher number of barriers to engaging in regular physical activity ($p < .05$, $r = .312$). Both barriers to regular physical activity and healthful eating habits were negatively correlated to placement on the Stages of Change continuum with r -values of $-.386$ and $-.395$ ($p < .05$), respectively (Appendix D). This means that participants with a stronger readiness to change reported fewer barriers. Although barriers are correlated significantly to readiness to change, there is not a statistically significant correlation between perceived barriers and participation in WHPP (Appendix E).

Chapter 4: Limitations

There are several limitations to consider when interpreting these results. First, not all employees of the rural healthcare facility are represented; completion of the questionnaire was voluntary and about half of those eligible chose to complete the assessment. Considering this, those who tended to participate in wellness programming, despite identifying barriers, may also be the same employees who willingly chose to complete the questionnaire. Second, the questionnaire was not a validated measure. Rather, it was based upon similar questionnaires used to assess similar constructs of health behavior theories, and on statements and questions formulated from literature regarding the Transtheoretical Model. Finally, the results of this questionnaire may not be applicable to every rural worksite, as population demographics vary greatly between communities and worksites.

The demographic profile of the survey sample is likely related to the voluntary basis on which participants completed the survey. Seventy-two percent (72%) of those who completed the survey had at least two years of college education, making this a unique population. According to the USDA Economic Research Service, in 2000, 35.9% of Hamilton County, Nebraska residents completed at least some college, while 18.6% had a college degree.

Also, according to respondents, nearly 60% earned \$50,000 or more annually. With this in mind, the results of this survey could be applied to employees with more education and higher earnings, and may not be as suitable for application to a wider range of income levels in a similar community or worksite setting. The earnings reported by subjects were representative of the median annual household income (\$50,850) for

Hamilton County. (Information regarding annual household income was assessed with a complete the sentence statement: My annual household income before taxes is:).

However, the reported income level is approximately seven percent (7%) higher than the annual median household income for the state, with a population that is predominantly rural (about 70%) (USDA, 2005).

Chapter 5: Conclusions

It was expected that as perceived benefits to participating in regular physical activity and healthful eating habits increased, perceived barriers would decrease and placement on the Stages of Change continuum would tend to be action or maintenance (later stages). A greater number of perceived benefits did not correlate to a later stage, however. Fewer perceived barriers did point toward a greater likelihood of existing in a later stage (action or maintenance). These results indicate that although benefits may be identified, there are other factors that contribute to not engaging in healthful eating, regular physical activity or WHPP. As barriers are overcome or fewer are identified, likelihood of engaging in the behaviors or activities assessed here and being in a later Stage of Change increases.

With this in mind, further evaluation of factors related to participants' ability to overcome barriers and maintain engagement in regular physical activity and healthful eating habits would be beneficial. Finally, according to the results of this survey, more perceived benefits were more closely associated with increased likelihood of engaging in regular physical activity, healthful eating and participation in WHPP. Taking a closer look at the determinants of and psychosocial variables associated with perceived benefits may be the next step in helping public health practitioners have a greater impact on lifestyle behaviors.

Future research to assess other factors with the potential to influence participation in healthful eating, regular physical activity and WHPP might include participant age, anthropometric data or health incidents (or negative health events) occurring in the life of the individual, an individual's family member or close friend. Younger individuals may

not see the value in engaging in said behaviors, as they tend to experience fewer negative health events. Those with lower body mass index (BMI) values may already be engaged in healthful eating and regular physical activity; if they are not, they may not see the benefit in starting. Seeing first-hand the negative consequences of poor lifestyle behaviors may be an impetus for behavior change; this factor is worthy of a closer look at its influence on eating and physical activity habits. Each of these variables has the potential to influence health behavior and future research that addresses these is warranted.

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March 17, 2010

Kayte Tranel
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Kaye Stanek Krogstrand
Department of Nutrition and Health Sciences
202J LEV UNL 68583-0806

IRB Number: 20100310595 EX

Project ID: 10595

Project Title: A Pilot Study to Assess the Readiness and Barriers as Correlates to
Participation in Rural Worksite Health Promotion Programming

Dear Kayte:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 2.

You are authorized to implement this study as of the Date of Final Approval: 03/17/2010.
This approval is Valid Until: 08/01/2010.

1. The approved informed consent form has been uploaded to NUgrant (file with - Approved.pdf in the file name). Please use this form to distribute to participants. If you need to make changes to the informed consent form, please submit the revised form to the IRB for review and approval prior to using it.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research

procedures;

- * Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- * Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- * Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- * Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman

Becky R. Freeman, CIP
for the IRB





Greetings.

You are being asked to participate in a survey used for research to gain more knowledge about yours and your coworkers' participation in the worksite wellness programs that your employer, Memorial Community Health, Incorporated, offers. The benefits to you for completing the questionnaire include: gaining information that can be used to improve the wellness programs you're offered, wellness programs that better suit your needs and wants, and knowing that you are helping increase knowledge that can be used to improve wellness programming for employees in other rural worksites. There are no known risks to completing the survey

This 25-item questionnaire should take approximately 15 – 20 minutes to complete. You are asked to complete the survey at Memorial Community Health, Incorporated, during this scheduled departmental staff meeting time. Please complete the entire survey, reading each question and its possible answers thoroughly before answering. Choose the answer(s) that are the best for you. Your answers to the survey are anonymous, so please answer each question as honestly as you can.

You are not required to participate. There will be no consequences from Memorial Community Health, Incorporated or the University of Nebraska-Lincoln for choosing to not participate by completing the questionnaire. All information provided will be strictly confidential and kept in a locked cabinet in the secondary researcher's office. The information will be combined and may be reported at scientific meetings and in scientific journals. Finally, the information may be used, in aggregate, by Memorial Community Health, Incorporated to enhance participation and improve the wellness programming employees are offered; individual subject survey results will not be reported

If you have questions about participating or would like to report concerns, please contact the University of Nebraska-Lincoln Institutional Review Board at 402-472-6965.

Thank you for your time and willingness to participate. If you have questions or comments, please contact the primary investigator, Kayte Tranel at 402-419-4771 or ktranel1@huskers.unl.edu or Dr. Kaye Stanek Krogstrand at kstanek1@unl.edu or 402-472-5285.

Sincerely,
Kayte Tranel
Primary researcher

Dr. Kaye Stanek Krogstrand, RD, LMNT
Secondary researcher

Appendix C

For questions #1 through #6, regular physical activity is defined by scheduled activity (e.g. vigorous walking, organized sports, jogging, cycling, aerobics and the like) of at least 30 minutes in duration daily on at least five days per week.

1. Do you currently engage in regular physical activity?

_____ No (go to question #3)

_____ Yes

2. If you do engage in regular physical activity, how long have you been doing so? (After choosing your answer, go to #5.)

_____ less than 1 month

_____ 1 – 3 months

_____ 3 – 6 months

_____ 6 – 12 months

_____ 12 months or more

3. If you're not currently engaged in regular physical activity, have you ever considered being regularly physically active?

_____ No (go to question #5)

_____ Yes



4. How long have you considered engaging in regular physical activity?

_____ less than 1 month

_____ 1 – 3 months

_____ 3 – 6 months

_____ more than 6 months

5. **If you currently engage in regular physical activity, would you be more likely to continue regular physical activity if your worksite offered physical activity programs?**

_____ Yes

_____ No

6. **If you do not currently engage in regular physical activity, would you be more likely to start if your worksite offered physical activity programs?**

Yes _____

No _____

7. **Barriers you see for yourself that keep you from being regularly physically active include (check all that apply):**

Barriers are any reasons you can identify that prevent you from being regularly physical active.

_____ lack of time

_____ lack of knowledge about physical activity

_____ lack of equipment or resources

_____ lack of support from family, friends, coworkers or employer

_____ You do not believe that you can or are able to be physically active

_____ You don't have any barriers to being regularly physically active

For questions #8 through #14, healthy eating is defined as maintaining low fat and saturated fat intake and consuming at least 5 servings of fruits and vegetables daily. One serving of fruit = ½ cup sliced fruit or ¼ c. dried fruit; one serving of vegetables = ½ cup chopped fresh or steamed vegetables or 1 cup of leafy vegetables.

8. **Do you currently engage in healthy eating habits?**

_____ No (go to question #10)

_____ Yes



9. If you do engage in healthy eating habits, how long have you been doing so? (After choosing your answer, go to #12.)

_____ less than 1 month

_____ 1 – 3 months

_____ 3 – 6 months

_____ 6 – 12 months

_____ 12 months or more

10. If you don't currently engage in healthy eating habits, have you ever considered doing so?

_____ No (go to question #13)

_____ Yes



11. How long have you been considering engaging in healthy eating habits?

_____ less than 1 month

_____ 1 – 3 months

_____ 3 – 6 months

_____ more than 6 months

12. If you currently engage in healthy eating habits, would you be more likely to continue doing so if your worksite offered healthy eating programs?

_____ No

_____ Yes

13. If you do not currently engage in healthy eating habits, would you be more likely to do so if your worksite offered healthy eating programs?

_____ No

_____ Yes

14. Barriers you see for yourself that keep you from practicing healthy eating habits include: (check all that apply)

Barriers are any reasons you can identify that prevent you from practicing healthy eating.

- lack of time
- lack of knowledge about healthy eating
- lack of equipment or resources
- lack of support from family, friends, coworkers or employer
- You do not believe that you can or are able to practice healthy eating habits
- You don't have any barriers to practicing healthy eating habits

15. Do you participate in the employee wellness programs that are offered to you at MCHI?

- No (skip to #19)
- Yes

16. Which wellness programming activities have you participated in at MCHI? (check all that apply)

- lunch 'n learns
- reading table tents or posted other health information
- attending the annual health fair
- participating in incentive programs (e.g. MCHI Moves!, Fit Fore Life)
- Small Steps to Health & Wealth series
- filling out health/wellness needs and wants assessments
- exercise equipment in the physical therapy department

17. What are your reasons for participating in wellness programming activities at MCHI? (check all that apply)

- it improves your quality of life
- you receive incentives for participation
- you are able to participate with friends or coworkers
- wellness programs help you feel like a valued employee
- convenience of on-site exercise equipment (physical therapy dept.)

18. What would encourage you to continue participating in wellness programming at MCHI? (check all that apply) After choosing your answers, go to #21.

- discounted health insurance premiums
- employer contributions to your health savings account
- participation by more MCHI employees
- encouragement and participation by your supervisor
- programs that include support from your coworkers
- family members are encouraged to participate with you

19. Considering you do not currently participate in wellness programming at MCHI, what are your reasons for not participating? (check all that apply)

- the programs do not interest you
- the programs are not relevant to your life
- you do not value the incentives
- you are not aware of the wellness programs
- your work friends do not participate
- your family members do not participate

_____ you do not know how to use the exercise equipment in the physical therapy department

20. Considering you do not currently participate in wellness programming at MCHI, what would encourage you to begin participating? (check all that apply)

- _____ discounted health insurance premiums
- _____ employer contributions to your health savings account
- _____ other incentives for participation
- _____ participation by more MCHI employees
- _____ encouragement and participation by your supervisor
- _____ family members are encouraged to participate with you
- _____ programs that include support from your coworkers

21. What types of wellness programs are you willing to participate in?

- _____ before or after work
- _____ lunch 'n learns
- _____ wellness outings within your department
- _____ programs that include support from your coworkers
- _____ healthy eating/nutrition programs
- _____ stress management programs
- _____ physical activity/exercise programs
- _____ incentive-based programs
- _____ programs that reward improvement of your health indicators (e.g. blood pressure, BMI, cholesterol, etc.)
- _____ programs that help me build skills and knowledge to lead a healthier life

22. The highest level of education I've completed is:

- _____ High school diploma or GED
- _____ 2 years of technical school or college
- _____ 4 years of college or Bachelor's Degree
- _____ more than 4 years of college

23. I am

- _____ Married _____ Single

24. Below, please indicate the number of people in your household.

25. My annual household income before taxes is:

- _____ less than \$20,000
- _____ \$20,000 - \$29,999
- _____ \$30,000 - \$39,999
- _____ \$40,000 - \$49,999
- _____ \$50,000 - \$59,999
- _____ \$60,000 or more

Please provide further comments that you may want to add below:

Appendix D

		Barriers	Barr_eat
Benefits	Pearson Correlation	.270**	-
	Sig. (2-tailed)	.007	-
	N	98	-
Barr_eat	Pearson Correlation	.312**	-
	Sig. (2-tailed)	.002	-
	N	98	-
Stage	Pearson Correlation	-.386**	-.305**
	Sig. (2-tailed)	.000	.002
	N	98	98

Appendix E

	Num_part	Barriers
Num_part	1	0.03968 0.6951
Barriers	0.03968 0.6951	1

This correlation is not significant, $p > 0.05$.