Are social obstacles to physical activity behavior change more problematic for collectivistically-oriented ethnic minorities?

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Abstract

In the United States, obesity and physical inactivity are more prevalent among ethnic minorities (African-Americans, Latinos, Asians) than among Whites. Several theorists have posited that social support indirectly and self-efficacy influence physical activity behavior change through changes in cognition, which are in turn shaped by one’s cultural background and ethnicity. In this study, the influence of self-efficacy in the face of social obstacles as a mediator between healthy physical activity behavior improvements and ethnic groups was analyzed. On the basis of data from the 204 participants in the Make Better Choices (MBC) Study, ethnic minorities are not more heavily influenced by social obstacles to physical activity behavior change than non-social obstacles. However, the study found that in comparison to other ethnic groups, Asians were more likely to report low confidence scores in response to obstacles, both social and non-social, to physical activity behavior changes. Moreover, Asians engaged in less physical activity than other ethnic groups. Though the greater sensitivity to obstacles did not affect Asians’ performance in physical activity change, it may explain why Asians are more prone to physical inactivity in general, or be a result of this phenomenon. This, in addition to the deficiency of research on health among Asians, demonstrates the need for health services to pay particular attention to Asians in regards to encouraging preventative health behaviors.
In the United States, obesity and other cardiovascular disease risk factors tend to be more prevalent in ethnic minorities than in Whites, even after education and socioeconomic status are controlled for (Winkleby, Kraemer, Ahn & Varady, 1998; Wang & Beydoun, 2007; Zhang, Wang & Huang, 2009). For example, adjusting for age, African-American and Latino-American adults tend to be less physically active during leisure time relative to White adults (Crespo, Smit, Anderson, Carter-Pokras & Ainsworth, 2000). Similarly, Asian Americans, especially children, are less likely to meet recommended levels of leisure time physical activity than Whites (Ye, Rust, Baltrus & Daniels, 2009; Kandula & Lauderdale, 2004; Singh, Yu, Siahpush & Kogan, 2008). These disparities in physical activity and sedentary leisure behaviors between ethnic groups are important to study in light of the alarmingly fast-growing prevalence of obesity in the United States, especially among ethnic minorities. Moreover, this subject is of importance because ethnic minorities have traditionally been underrepresented in health research (Crespo et al., 2000).

Sociostructural factors & health behavior

Social support has consistently been shown to facilitate success in health behavior change interventions, especially for increasing physical activity (Wing & Jeffrey, 1999). Social support often takes the form of friends or family members who engage in and/or support personal healthy lifestyle behaviors, such as exercising and eating balanced meals. This could also be through group weight-loss programs or internet-supported social networks dedicated to supporting health behavior change. The pattern of increased physical activity in response to greater social support is evident across sample varying in age (Treiber et al., 1991; Resnick, Orwig, Magziner & Wynne, 2002), gender (Oka, King & Young, 1995), race (Thornton et al., 2006; Oka et al., 1995), and work status (Treiber et al., 1991).
Several theorists have posited that social support indirectly influences healthy behavior change through changes in cognition, such as self-efficacy beliefs and outcome expectations. According to social psychologist Albert Bandura (1995), self-efficacy is “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (p. 2). Self-efficacy not only affects behavior directly, but also impacts other downstream psychological determinants of behavior, such as goals, outcome expectations, and perception of impediments or opportunities (Bandura, 2000). Trost, Owen, Bauman, Sallis and Brown (2002) asserts that self-efficacy is the most consistent psychological correlate of physical activity behavior. More specifically, greater perceived self-efficacy has been linked to greater adherence to programs of physical exercise (Desharnais, Bouillon & Godin, 1986; McAuley, 1992; Sallis et al., 1986).

Self-efficacy can be developed through vicarious experience provided by social models and/or through social persuasion (Bandura, 1998). Social models provide people with not only a social standard against which to judge personal capabilities, but also venues to learn skills. Social persuasion encourages people to believe that they possess the tools required for success. Self-efficacy is also linked to social support through Bandura’s theory on collective efficacy, which explains that people’s shared beliefs determine group goals and how much effort they are willing to use to reach these goals (Bandura, 2000). In other words, a person who strives to exercise daily and spends time with others who also exercise daily will be more willing to reach this goal than a person who wants to exercise but does not have a friend or family member with that same goal. Bandura (1997) suggests that collective enablement is the approach that works best to promote community self-help.

Does culture moderate the influence of sociostructural factors?
However, social support may not affect all participants in health behavior change equally. For instance, relative to individualists, collectivists tend to be more strongly influenced by social factors (Markus, 1991). Individualists look to their own actions to understand who they are while collectivists base their self-understanding on the reactions of significant others (Markus, 1991). Thus, collectivists may be more receptive than individualists to a collective-self efficacy model in working towards their physical activity change.

Through differing cultures, ethnicity can play a large role in how individuals construct their self-understanding and use self-efficacy. A wealth of research has shown evidence for stronger collectivist tendencies among Asians/Asian Americans (Hetts, Sakuma & Pelham, 1999; Rhee, Uleman, & Lee 1996; Yamaguchi, Kuhlman & Sugimori, 1995), African-Americans (Oyserman, Gant, & Ager, 1997), and Latinos (Freeberg & Stein, 1996) compared to Whites (Gaines et al., 1997). It is not surprising that these minority groups also place more focus on the family. Fuligni, Tseng, and Lam (1999) found that Asian and Latin American adolescents had stronger values and greater expectations related to assisting, respecting and supporting their families relative to their white peers. Therefore, ethnic minorities may be more strongly influenced by significant others, especially family members. This is evidenced in several studies showing higher self-efficacy beliefs among Western groups, including Americans and Western Europeans, than non-Western groups, such as ethnic minorities in the United States (Klassen, 2004).

This relationship between ethnicity and self-efficacy has also been studied in the context of physical activity. For instance, social support has been shown as a positive correlate for leisure time physical activity among women, including those from minority groups (Eyler et al., 1998; Eyler et al., 1999; Eyler et al., 2003). Similarly, self-efficacy is positively associated with
exercise and leisure time physical activity in samples of ethnically diverse women (Sternfeld, Ainsworth & Quesenberry, 1999; Eyler et al., 2003).

Moreover, a few studies have looked at how social factors influence specific ethnic groups in promoting healthy physical activity behaviors. Marquez and McAuley (2006) found that Latinos who spent more leisure time engaging in physical activity received more social support from friends and had greater self-efficacy. This is similar to the findings in Evenson, Sarmiento, Tawney, Macon & Ammerman (2003) and Wilbur, Chandler, Dancy and Lee (2003a) that Latina women who see other women exercising in their neighborhood are more likely to engage in physical activity. In a study with a similar finding, Wilbur, Chandler, Dancy and Lee (2003b) found that African-American women living in urban Chicago who knew people who exercised were more likely to exercise than those who did not know people who exercised. Other studies have also shown that among African-American women, not having an exercise partner acts as a barrier to physical activity (Niles, Vollman & Cook, 1999) while the social aspect of exercising is an incentive (Airhihenbuwa, Kumanyika, Agurs & Lowe, 1995). However, the relationship between self-efficacy and physical activity patterns among Asians overall has not been extensively analyzed, though Choi, Wilbur, Miller, Szalacha and McAuley (2008) found that self-efficacy was positively correlated with leisure time physical activity among older Korean immigrant women.

The role of self-efficacy in physical activity behavior change may differ between ethnicities. For instance, self-efficacy has been found to be more positively associated with physical activity participation among Whites compared to other ethnic groups (Whitt-Glover et al., 2009). Similarly, enjoyment of physical activity and parental encouragement to engage in
these activities tend to be more strongly associated among Whites than in ethnic minority groups (Mcguire, Hannan, Neumark-Sztainer, Cossrow & Story, 2002).

Based on these theories of self-efficacy and collectivism among ethnic minorities in the United States, we hypothesize that the efforts to make physical activity behavior changes among ethnic minority groups, specifically those known to be higher in collectivistic orientation, may be more strongly discouraged by social obstacles. Specifically, we hypothesize (H1a) that the self-efficacy among collectivist minority groups is lower when faced with social obstacles (e.g. “My friends don't want me to exercise.”) relative to Whites. However, we hypothesize (H1b) no difference between ethnic groups in self-efficacy when faced with non-social obstacles. In the present investigation, we explore this hypothesis using existing data from the Make Better Choices (MBC) study. The MBC study was a randomized clinical trial that tested four interventions designed to promote healthy changes in four behaviors: increasing fruit and vegetable intake (FV+), decreasing saturated fat intake (Sat-), increasing physical activity (PA+), and decrease sedentary behavior (Sed-). We analyzed self-reported self-efficacy measures that rated confidence in making physical activity behavior changes in response to both social and non-social obstacles.

Method

The study design and methods are described in greater detail in BMC Public Health (Spring, 2010), and will be described briefly.

Study Sample

Adults in the Chicago area between ages 21 and 60 years were recruited through community advertisements. To be eligible, individuals were required to report all of the following: a) <5 fruits and vegetables (FV) servings/day; b) >8% caloric intake from saturated
fat (Fat); c) <60 min/day moderate/vigorous physical activity (PA); and d) >90 min/day targeted sedentary screen time (Sed). All procedures were approved by the Institutional Review Boards of the University of Illinois at Chicago and Northwestern University.

Two-Week Baseline Phase (and Final Eligibility Screening)

Candidates who self-reported all four risk behaviors were screened by a Bachelor level research assistant (coach). The coach trained participants to accurately estimate and use a handheld device to record and upload dietary intake, moderate-vigorous intensity physical activity, and targeted recreational sedentary screen time. During the two-week baseline phase, participants wore an accelerometer, recorded diet and activity on the handheld device, and submitted data daily to the coach.

Randomization

Candidates who displayed all four risk behaviors throughout baseline, as evidenced by handheld and accelerometer data, were randomized (stratified by gender) using a computer-generated sequence. The four behavioral intervention groups differed based on the behaviors that were targeted. Each group was assigned to target a different combination of two behavior goals, one related to diet (FV or Fat) and one related to activity (PA or Sed): (1) increase FV and PA (FV↑PA↑), (2) decrease Fat and increase PA (Fat↓PA↑), (3) increase FV and decrease Sed (FV↑Sed↓), or (4) decrease Fat and Sed (Fat↓Sed↓).

Handheld Tool

Participants used a personal digital assistant to record and self-regulate their targeted behaviors. They were instructed to carry the device and record immediately after executing a behavior. During treatment and follow-up, the handheld device displayed two decision support feedback “thermometers” – one for diet (F/V or Fat) and one for activity (PA or Sed). Once
activated, goal thermometers were continually updated in response to data entry. The goal thermometers also enabled participants to observe the potential impact of a food or activity choice.

**Measures**

*Demographics.* For each participant, data on gender, age, ethnicity, marital status, education, income, and household size were collected. Ethnicity options consisted of African-American, Asian/Pacific Islander, Caucasian/non-Hispanic White, Hispanic and multi-ethnic.

*Assessment of Individual Behaviors.* Saturated fat and FV consumption were measured from daily intake recordings. Minutes of physical and sedentary activity were measured cumulatively by an end-of-day 24-hour activity log in which participants accounted for every 15-minute block of each day.

*Weight.* Weight was measured at three times: at Baseline, end of Prescription, and at the end of the Follow-up Phase. A trained staff member weighed participants (to the nearest 1 lb) on a calibrated beam balance scale without shoes and wearing light clothing. Two measures were recorded at each visit.

*Self-efficacy.* Self-efficacy for the four behavior changes was measured at baseline using questionnaires adapted from Marcus, Shelby, Niaura & Rossi (1992). Participants were asked to rate their confidence in either exercising or decreasing sedentary pastimes, when faced with a particular obstacle, on a 1-5 confidence scale, 1 being “not at all confident” and 5 being “completely confident.” These questionnaires can be found in Appendix A. For the self-efficacy measures on exercise and sedentary pastime behavior, we created two submeasures, one for social obstacles and another for nonsocial obstacles. Social obstacles consisted of situations where the actions of significant others hindered healthy behavior, such as “I have to exercise
alone” and “My friends are watching television or playing videogames.” Non-social obstacles consisted of the other items in the measure, such as “The weather is unpleasant.” The composite measure and subscales each had strong internal reliability; Cronbach’s alpha = 0.90 for social obstacles to physical activity behavior change; α = 0.80 for social obstacles to sedentary behavior change.

Results

Study Sample

The final sample of 204 adults included 48 males; 46.6% minorities; 25% with no more than a high school education; and mean age of 33.3 years (s.d. = 11.01). Out of the 204 adults, there were 47 African-Americans, 23 Asians/Pacific Islanders, 18 Latinos and 7 multi-ethnic participants.

Physical Activity Levels

The mean length of daily physical activity among the participants was 88.96 minutes. Comparing across ethnic groups, Asians were significantly less physically active when compared with non-Asians, [F(5, 188) = 4.49, p < 0.05], as depicted in Figure 1.

Figure 1. Mean duration of daily physical activity during study by ethnicity.
Analytic strategy

Analyses were performed with SPSS using linear regression. We tested whether self-efficacy in the face of social obstacles would mediate the relation between ethnicity and activity change during the MBC intervention (PA+ and Sed-). This mediation is represented in Figure 2.

Figure 2. Mediation of ethnicity on activity change by self-efficacy in face of social obstacles.
Baron and Kenny (1986) present four steps for establishing mediation. Steps 1 and 2 involve showing that the independent variable (i.e., ethnicity) is related to the outcome (i.e., activity change) and showing that the independent variable is related to the mediator (i.e., self-efficacy in face of social obstacles). Step 3 requires that the mediator affect the outcome variable, controlling for the independent variable. The final step for establishing mediation looks at the relation between the initial independent variable and the outcome, controlling for the mediator. If this effect drops to zero, there is full mediation; if it drops significantly (Sobel, 1982) there is partial mediation.

**Step 1: Did ethnicity predict activity change?**

To test whether ethnicity predicted activity change (PA or Sed), we ran an analysis of covariance (ANCOVA) with ethnic group identified as the between-subject factor, baseline activity (PA or Sed) identified as a covariate, and activity at end of prescription identified as the outcome. The omnibus effect for ethnicity was non-significant when predicting both PA \([F(5, 189) = 0.23, p = 0.95]\) and Sed \([F(5, 199) = 0.21, p = 0.96]\).

**Step 2: Does ethnicity predict self-efficacy?**

To test whether ethnicity predicted self-efficacy in the face of social or non-social obstacles, we ran a multivariate analysis of variance (MANOVA) with ethnic group identified as the between-subject factor and self-efficacy scores (social or non-social obstacles) as the outcomes. The omnibus effect for ethnicity was significant when predicting self-efficacy for physical activity behavior change in the face of social obstacles \([F(5, 187) = 3.19, p < 0.01]\) and in the face of non-social obstacles \([F(5, 187) = 2.47, p < 0.05]\). On the other hand, the omnibus effect for ethnicity was not significant when predicting self-efficacy for sedentary activity.
behavior change in the face of social obstacles \[F(5, 185) = 0.82, p = 0.54\] and in the face of non-social obstacles \[F(5, 185) = 0.50, p = 0.78\].

Because the omnibus effect for ethnicity significantly predicted self-efficacy in the face of social or non-social obstacles, we conducted a series of planned sub-contrasts (Asians vs. Whites, Latinos vs. Whites, African-Americans vs. Whites). Further details of these analyses are provided in Table 1 and visually represented in Figures 3 and 4.

**Self-efficacy of Asians vs. Whites.** Compared with Whites, Asians were not significantly different in their ability to make healthy exercise behavior choices when confronted by social obstacles, \(r(122) = -0.16, p = 0.07\). However, they were significantly less confident in their ability to be physically active when faced with non-social obstacles, \(r(120) = -0.26, p < 0.05\). There was no significant difference between Asians and Whites in their confidence in ability to make healthy sedentary behavior changes when faced with social obstacles, \(r(122) = -0.01, p = 0.47\), or non-social obstacles, \(r(118) = -0.01, p = 0.41\).

**Self-efficacy of African-Americans vs. Whites.** Compared with Whites, African-Americans were no less confident in their ability to make healthy exercise behavior choices when confronted by social obstacles, \(r(140) = 0.14, p = 0.09\), or non-social obstacles, \(r(139) = 0.01, p = 0.94\). There was also no significant difference between African-Americans and Whites in their confidence in ability to make healthy sedentary behavior changes when faced with social obstacles, \(r(141) = 0.08, p = 0.32\), or non-social obstacles, \(r(136) = -0.06, p = 0.49\).

**Self-efficacy of Latinos vs. Whites.** Similarly, there was no significant difference between Latinos and Whites in their confidence in ability to make healthy exercise behavior changes when faced with social obstacles, \(r(118) = 0.04, p = 0.63\), or non-social obstacles \(r(116) = 0.00, p = 0.98\). There was also no significant difference between Latinos and Whites in their confidence
in ability to make healthy sedentary behavior changes when faced with social obstacles, $r(118) = 0.07, p = 0.44$, or non-social obstacles, $r(114) = 0.07, p = 0.43$.

**Self-efficacy of Asian vs. Non-Asian Americans.** Studies have found that Asian Americans tend to have higher levels of collectivism, even relative to African-Americans and Latinos (Coon & Kemmelmeier, 2001). Consistent with this, differences were found between Asian vs. Whites in our sample but non-Asian ethnic minority groups did not differ from Whites in their self-efficacy for physical activity and sedentary leisure. As a result, we next ran a series of correlations, this time collapsing across non-Asian groups and contrasting Asian versus non-Asian (includes African-Americans, Latinos and multi-racial participants) comparison groups.

In this analysis, Asians were significantly less confident in their ability to be physically active in comparison to non-Asians when faced with either social obstacles, $r(187) = -0.18, p < 0.05$, or non-social obstacles $r(187) = -0.23, p < 0.05$.

**Table 1. Correlating Ethnicity with Self-Efficacy in the Face of Social and Non-Social Obstacles**

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<td><strong>Asian v. White</strong></td>
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<tr>
<td>Pearson Correlation</td>
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<td>-.260</td>
<td>-.066</td>
<td>-.077</td>
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<td>Sig. (2-tailed)</td>
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<td>.468</td>
<td>.406</td>
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<td>120</td>
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<td><strong>African-American v. White</strong></td>
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<tr>
<td>Pearson Correlation</td>
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<td>.007</td>
<td>.084</td>
<td>-.059</td>
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<tr>
<td>Sig. (2-tailed)</td>
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<td>.939</td>
<td>.316</td>
<td>.494</td>
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<td>143</td>
<td>138</td>
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<td><strong>Latino v. White</strong></td>
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<tr>
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<td>.072</td>
<td>.074</td>
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<tr>
<td>Sig. (2-tailed)</td>
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<td>.430</td>
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<td>N</td>
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<td>118</td>
<td>120</td>
<td>116</td>
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<td><strong>Asian v. non-Asian</strong></td>
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<td>N</td>
<td>189</td>
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**Figure 3.** Asians had significantly lower self-efficacy scores in the face of social obstacles to increasing physical activity.
Figure 4. Asians had significantly lower self-efficacy scores in the face of non-social obstacles to increasing physical activity.

Steps 3 and 4

We did not carry out steps 3 and 4 of the mediation analysis because we did not find significance in step 1, in which ethnicity did not predict health behavior change outcomes.
Discussion

Non-social obstacles to healthy physical activity behavior change are more problematic for Asians than for Whites, whereas social obstacles are not more problematic. When compared to non-Asians (African-Americans and Latinos included), both social and non-social obstacles to healthy physical activity are more problematic for Asians. For African-Americans and Latinos, both social and non-social obstacles to healthy physical activity behavior change are not more problematic in comparison to Whites. Social and non-social obstacles to healthy sedentary pastime activity are not more problematic for any of the three ethnic minority groups in comparison to Whites. Though previous studies show that ethnic minorities in the United States are more collectivistic, we found that social obstacles do not pose a greater hindrance to healthy behavior change than non-social obstacles for these groups. Therefore, our initial hypothesis that social influences play a greater role in health behaviors among collectivist cultures than among individualist cultures was not founded.

There may not have been a significant mediation relationship, in which self-efficacy in the face of social obstacles mediates the relationship between ethnicity and physical activity behavior change, because the ethnic minority groups may not have been as collectivist as assumed. While it is possible that collectivist-minded individuals are more sensitive to social obstacles to physical activity behavior change than non-collectivist- minded individuals, it would not be evidenced by the study if the ethnic minority groups as a whole are not collectivist. It is possible that the African-Americans, Latinos and Asians were not as homogenously collectivistic as suggested by previous research. For instance, individuals within each group may have acculturated to the United States and been more individualistic. If so, these individuals would not be as collectivist, and would therefore not be as strongly influenced by social obstacles than
other members of their ethnic group who are more collectivist as initially predicted. These within-group differences may have contributed to our null finding.

That Asians are more sensitive to obstacles, both social and non-social, in healthy exercise behavior change in comparison to non-Asians, was an unexpected finding. This may be attributed to the overall lower sense of personal control among Asians, both in the United States and in Asia, as a lessened belief in personal ability and control would result in lower self-efficacy scores (Sastry, 1998). Or, the lower self-efficacy scores among Asians may be due to modesty, a quality that is valued in Asian cultures. For example, in Kim and Park (2008), Asian college students were less likely to make favorable self-evaluations than White college students. Similarly, East Asians are found to be more self-critical than Westerners (Falk, Heine, Yuki & Takemura, 2009). This may mean that though Asians evaluate themselves negatively in an explicit manner, Asians still maintain positive evaluations of themselves implicitly (Kitayama & Uchida, 2001). Given these cultural norms, it is possible that in this study, Asians simply reported and did not in reality have lower self-efficacy beliefs, than non-Asians.

The study also found lower frequency of physical activity among Asians, which may be related to the group’s reported higher sensitivity to obstacles in healthy behavior change. If Asians did indeed have lower self-efficacy to exercise, this would result in lower exercise levels. However, if Asians engaged in less physical activity than other ethnic groups for some other reason, their lower self-efficacy scores may have been a result, rather than a cause, of less physical activity. If a causality relationship between frequency of physical activity and self-efficacy scores does indeed exist, its direction is unknown.

When measuring physical activity behavior change, Asians performed equally well as the other ethnic groups. Therefore, it is possible that lower self-efficacy is a barrier to day-to-day
physical activity, but not to physical activity change. This relates to a literature review by Klassen (2004), which found that lower efficacy beliefs do not necessarily translate to lower subsequent performance. Earley (1994) explains that rather than self-efficacy beliefs alone, it is context of these beliefs that matters. The congruency between psychological self-efficacy and social system structure determines personal productivity. Thus, though a person may report lower self-efficacy for a certain task, this would not necessarily mean that s/he is less equipped to execute that task. Though all participants in the MBC study were residents of Chicago, it is possible that Asians and non-Asians operated under different cultural norms, engaged in different social systems, and hence reacted differently to self-efficacy. This may explain why changes in Asians’ physical activity and sedentary behavior level were not significantly different from those of other ethnicities despite having lower self-efficacy scores overall.

Limitations

Because the Make Better Choices study was not specifically created to analyze whether ethnic minorities respond more strongly to social rather than non-social obstacles regarding healthy behavior change, there are several improvements that could be made to better frame our study. For instance, the small sample sizes for the ethnic minority groups may have attributed to lower p-values. While there was a disproportionate amount of minorities, 46.6%, in the study sample in comparison to that of the greater United States population, which is roughly 25%, future studies should include greater samples of ethnic minorities to better study the effects of social factors in relation to healthy behavior change.

Additionally, the self-efficacy questionnaire by Marcus et al. (1992) used in our study was not created to account for social versus non-social obstacles. Though the Cronbach’s alpha values demonstrated internal reliability in these submeasures, future studies should use validated
social and non-social obstacle measures, such as the Exercise Self-Efficacy Scale, Barriers Self-Efficacy Scale, and Social Support and Exercise Scale, which were used in Marquez & McAuley (2006), to further increase validity and reliability of the measures.

This study examined whether there were differences between ethnicities in healthy behavior change due to collectivist tendencies. However, there were no specific measures to determine degree of collectivism. Instead, generalizations about ethnicities from the existing literature were applied, though the minority groups in this study may not have completely fit these assumptions. A scale to measure individualist and collectivist behaviors would have been beneficial to determine whether the collectivist behaviors of the ethnic groups in our study matched that as predicted by the literature.

Finally, because causation cannot be determined by an observational study, experimental studies should be conducted. Controlling the presence of social support, either through an assigned diet partner or supportive social circle, will better isolate the effects of social factors in healthy behavior change. In this study, we could not account for differences in social environment between participants, which may have resulted in our null findings in regards to ethnicity, self-efficacy and healthy behavior change.

**Future Directions**

Previous studies find that Asians have a lower sense of personal control and confidence, and this study confirms it once again. Thus, it is important to study whether this phenomenon is related to negative health outcomes other than lower levels of physical activity, such as depression or suicide, which are health issues that are highly prevalent in the Asian/Asian American population. For instance, in 2001, the Office of the Surgeon General reported that...
Older Asian American women have the highest suicide rate of all women over age 65 in the United States.

Finally, it is important to continue studying Asians specifically because there is a generally a dearth of research on this population. This is evidenced by the fact that in a review of 91 studies on correlates of physical activity in women, only 3 included Asians (Eyler et al., 2002). In general, it is important to study specific populations, especially since some groups are more vulnerable to certain health risks.

Conclusion

We did not find that social obstacles were more problematic for healthy physical activity and sedentary pastime behavior improvements among ethnic minorities as hypothesized. However, we found that Asians were more likely to report low confidence scores in response to obstacles, both social and non-social, to physical activity behavior changes. Though the greater sensitivity to obstacles did not affect their performance in physical activity change, it may explain previous findings that Asians are more prone to physical inactivity, or be a result of this phenomenon. Asians’ lower self-efficacy and physical activity levels, in addition to the deficiency of research on health among Asians, demonstrates the need for health services to pay particular attention to Asians in regards to encouraging preventive health behaviors.
Appendix A: Self-Efficacy Measures

**Exercise Self-Efficacy**

This questionnaire looks at how confident you are to exercise when other things get in the way. Read the following items and write the number that best expresses how each item relates to you in your leisure time. Please answer using the following 5-point scale:

1 = Not at all confident
2 = Somewhat confident
3 = Moderately confident
4 = Very confident
5 = Completely confident

1. ____ I am under a lot of stress.
2. ____ I am depressed.
3. ____ I am anxious.
4. ____ I feel I don’t have the time.
5. ____ I don’t feel like it.
6. ____ I am busy.
7. ____ I am alone.
8. ____ I have to exercise alone.
9. ____ My exercise partner decides not to exercise that day.
10. ____ I don’t have access to exercise equipment.
11. ____ I am traveling.
12. ____ My gym is closed.
13. ____ My friends don’t want me to exercise.
14. ____ My significant other does not want me to exercise.
15. ____ I am spending time with friends or family who do not exercise.
16. ____ It’s raining or snowing.
17. ____ It’s cold outside.
18. ____ The roads or sidewalks are snowy.
Sedentary Activity: Self Efficacy

This questionnaire looks at how confident you are to decrease your targeted sedentary activity (watching television/movies, playing videogames and non-leisure computer use) in a variety of situations. Read the following items and write the number that best expresses how each item relates to you in your leisure time. Please answer using the following 5-point scale:

1 = Not at all confident
2 = Somewhat confident
3 = Moderately confident
4 = Very confident
5 = Completely confident

1. ____ I am under a lot of stress
2. ____ I am depressed
3. ____ I am anxious
4. ____ I am tired
5. ____ I don’t want to do anything else
6. ____ My friends are watching television or playing videogames
7. ____ My favorite shows are on television
8. ____ There is a movie marathon
9. ____ I don’t want to get off the couch
10. ____ I am spending a lot of time with friends and family who watch television
11. ____ I want to relax
12. ____ The weather is unpleasant
13. ____ I don’t know what to do
14. ____ I have been working hard
15. ____ I am alone
16. ____ I am feeling sick
17. ____ I want to spend time checking email or in chat rooms
18. ____ I have not watched television or surfed the internet in a while
References


