Assessing decisional balance for smoking cessation among Southeast Asian males in the US

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Abstract

This study examines the relationship of positive and negative perceptions of smoking to self-reported readiness to quit smoking among Southeast (SE) Asian males of Cambodian, Laotian or Vietnamese descent. In order to investigate this relationship, measures of decisional balance constructs (i.e. the pros and cons of smoking) appropriate for these ethnic groups were developed. Decisional balance was calculated by subtracting the cons from the pros. Following the criteria established by Prochaska and DiClemente, subjects were categorized into four levels of readiness to quit smoking (precontemplation, contemplation, preparation/action and maintenance). The expected pattern of relationship between decisional balance and stages of change included: (1) the cons of smoking being of less importance than the pros of smoking for those smokers in the precontemplation stage, (2) the pros and cons intersecting at the contemplation stage, and (3) the cons being of greater importance than the pros in the later stages of change. The SE Asian men in this study did not exhibit these decisional balance patterns, although mean decisional balance scores for those in the preparation/action and maintenance stages. Decisional balance patterns differed across the three ethnic groups included in the sample.

Introduction

According to the USDHHS (1990a), 32% of men in the US aged 20 and older currently smoke; however, 55% of Southeast (SE) Asian men in the US currently smoke. This rate is among the nation’s highest for individuals of this age group. A goal has been set for the nation to reduce the prevalence of smoking among SE Asian men to 20% by the year 2000 (USDHHS, 1990a). Unfortunately, smoking cessation programs developed for the general population have been less effective when applied to ethnic and socioeconomic subgroups (USDHHS, 1990b). To improve upon interventions targeting SE Asian men, the present study examines the applicability of constructs from the Transtheoretical Model of Change (Prochaska and DiClemente, 1984) to this ethnic population.

The Transtheoretical Model proposes that behavior change, rather than occurring at one point in time, is a process that involves a cyclical progression through five stages. The five stages of change and the criteria for classifying smokers into each stage are as follows: precontemplation (smoker has no intention to adopt new, more healthful behavior), contemplation (smoker is considering a behavior change), preparation (smoker is considering a behavior change in the near future and may be experimenting with behavior changes), action (smoker is attempting to quit, but is a former smoker for less than 6 months) and maintenance.
C. K. Lafferty et al.

(successful ex-smokers who have sustained a period of abstinence for more than 6 months). These stages of change have been well documented for the behavior change of smoking cessation (DiClemente and Prochaska, 1982; Prochaska and DiClemente, 1983; Prochaska et al., 1985, 1988; Wilcox et al., 1985; USDHHS, 1990c; DiClemente et al., 1991).

Various cognitive and motivational shifts are likely to occur as smokers progress through the stages of change. The construct of decisional balance has been developed to describe these shifts. Evolution of this construct began with a gain versus loss model of decision-making proposed by Janis and Mann (1977). This model suggests that behavioral decisions are based on the perceived magnitude of anticipated gains relative to anticipated losses. Gains and losses can be categorized as follows: (1) utilitarian gains and losses for self (e.g. ‘Smoking helps me concentrate and do better work’), (2) utilitarian gains and losses for others (e.g. ‘My cigarette smoke bothers other people’), (3) self approval or self disapproval (e.g. ‘I am embarrassed that I have to smoke’), and (4) approval or disapproval from significant others (e.g. ‘My family and friends like me better when I am happily smoking than when I am miserable trying to quit’). Using these four categories, a decisional balance scale operationalizing the decision-making process in smoking cessation was developed by Velicer et al. (1985). The instrument consisted of 20 items measuring two orthogonal constructs. The first construct (the pros) measured the perceived positive aspects of smoking. The second construct represented the perceived negative aspects of smoking (the cons). A measure of decisional balance was derived by subtracting the cons from the pros (Velicer et al., 1985).

Decisional balance changes as smokers move through the stages of change (Velicer et al., 1985). During precontemplation, the perceived benefits of smoking outweigh the perceived negatives. As the smoker progresses into the action and maintenance stages, the negative perceptions of smoking overtake the positive. Smokers in the contemplation stage should possess a decisional balance close to neutral, where the perceived pros and cons are nearly equal (Velicer et al., 1985).

To the best of our knowledge, no previous research has applied the stages of change and decisional balance constructs specifically to a SE Asian population. In order to do this, a decisional balance scale appropriate for this sub-group was adapted from the work of Velicer et al. (1985), and then scores on this scale were compared for ex-smokers and smokers reporting different levels of readiness to quit. Based upon previous findings, we hypothesize that the pros and cons of smoking will intersect at the contemplation stage of change. This relationship between the stages of change and decisional balance would indicate that SE Asian males follow a decision-making process similar to that of the non-minority smoker.

Methods

Sample

A sample of 312 SE Asian men was used in this investigation. The subjects represented male smokers and ex-smokers of Cambodian, Laotian and Vietnamese descent. Data were collected as part of a 5-year smoking cessation study of SE Asians in Franklin County, Ohio (Chen et al., 1993). This study followed the guidelines of the Indigenous Model for collecting data and intervening in a community. The Indigenous Model suggests that individuals who will be most acceptable and will have the greatest access to the SE Asian population are community members themselves. Therefore, SE Asian staff members indigenous to the ethnic communities of the participants had salient roles in outreach, data collection and intervention activities. The model proposes that the staff, through their training and intrinsic cultural sensitivity, will be most effective in these activities. Further details on the application of the Indigenous Model can be found elsewhere (Chen, 1989; Chen et al., 1992).

The names and biochemically verified smoking status of potential participants were identified from a baseline data set generated through the efforts.
of a coalition comprised of more than 70 local organizations (Chen et al., 1991). Initial lists consisted of persons known to coalition members and SE Asians identified through telephone listings. Once contacted, these participants were asked to identify any other community members from their ethnic group who might be interested in participating. In this way, 830 SE Asian men living in Franklin County, Ohio were recruited. According to 1990 census data, 1036 SE Asian men over the age of 18 lived in the county (271 Cambodian, 350 Laotian and 415 Vietnamese). If this estimate is accurate, over 80% of adult SE Asian males were contacted for a baseline interview. However, the level of illiteracy among the target population is high. In addition, for many SE Asians, the experience of being a refugee has instilled in them a mistrust of the government. These factors, in combination with inconsistent reporting of racial/ethnic origins, may have resulted in an undercount of the population for 1990 census data (Chen and Hawks, 1995).

One year after the initial baseline contact, an attempt was made to interview all 102 biochemically verified former smokers contained in the data set. Two years after baseline contact, an effort was made to conduct a face-to-face interview with all 330 men who were current smokers at baseline. Although response rates of greater than 80–90% are typical for face-to-face interviews (Dillman, 1978), contacting SE Asian participants for a second interview presented a unique obstacle. Many of the men had relocated (either for economic reasons or in order to be closer to family members). This contributed to a response rate of 67.6% among current smokers (n = 223, 20.03% moved) and 87.3% (n = 89) for former smokers. A total of 101 Cambodian, 132 Laotian and 79 Vietnamese men participated in this study. The demographics of the sample are described in Table I.

**Data collection**

Trained, bilingual staff members conducted home visits in order to administer a face-to-face interview with each participant. Questions were read to the participant in either English or the language of origin, whichever the subject preferred. The instrument was identical for all subjects with one exception: current smokers were read decisional balance items written in the present tense while former smokers heard the same items written in the past tense. Subjects received a food coupon redeemable for $10 worth of groceries at a variety of local SE Asian markets as compensation for their participation.

**Measures**

**Stage of change**

Biochemically verified former smokers constitute the men in the maintenance stage (n = 89). Smokers who answered ‘no’ to a question about whether they planned to quit smoking during the next 6 months were labeled precontemplators (n = 105). Those who answered ‘yes’, but who reported that they did not plan to quit smoking in the next month, were labeled contemplators (n = 47). Smokers who reported planning to quit during the next month constitute the smokers in the preparation stage (n = 66). Lastly, those who were currently attempting to quit but had not abstained from cigarettes for more than 6 months were categorized as in the action stage (n = 5). Due to the small number of men in the action stage and because they had quit smoking quite recently, the action and preparation stages were combined.

**Decisional balance**

The decisional balance measure for this study was based on the scale developed by Velicer et al. (1985). Subjects were asked to respond to questions regarding how important they felt certain aspects of smoking were. Answers were recorded on a five-point Likert scale ranging from not important to extremely important. In its original form the instrument consisted of 10 pro and 10 con items. For this investigation, four new items were added. Baseline data on SE Asian former smokers identified these additional topics as important reasons for quitting. The statements were carefully worded to represent the decisional balance categories suggested by Janis and Mann (1977). Back translation of the questionnaire insured equivalent meaning
for each ethnic group. The process involved native speakers rewriting the English version of each question into the three SE Asian languages. Items were then translated back into English by additional native speakers. The process ended when the content was consistent across languages for all items.

A principal component analysis was conducted on the responses to the 24 items in the questionnaire (13 pros and 11 cons). Varimax rotation was used. The factor analysis informed the development of two scales (pros and cons) that could then be used to calculate a common decisional balance scale for all three SE Asian ethnic groups by subtracting the cons from the pros. Seven items made up each of the scales and both demonstrated adequate inter-item reliability, as indicated by a Cronbach \( \alpha \) coefficient of 0.82 for each. Wording of the items and results of the factor analysis are available from the authors.

### Results

A two-factor analysis of variance, with stage of change and ethnicity as the factors of interest, was used to assess the relationships of these two factors to decisional balance scores. The overall model explained a significant amount of variance in decisional balance \( F(11,300) = 4.70, P < 0.0001 \). The main effects of both stage of change \( F(3,300) = 3.72, P < 0.01 \) and ethnicity \( F(2,300) = 6.81, P < 0.001 \) were statistically significant. The interaction between ethnicity and stages of change was also statistically significant \( F(6,300) = 2.38, P < 0.03 \).

Similar two-factor analyses of variance were conducted for the pros scale and the cons scale. The two-factor model explained a marginally significant amount of variance in the pros of smoking \( F(11,300) = 1.81, P = 0.052 \). The main effect of stage of change was not significant \( F(3,300) = 2.00, P = 0.11 \). However, ethnicity did significantly contribute to variation in positive perceptions of smoking \( F(2,300) = 6.52, P = 0.0017 \). No interaction between ethnicity and the stages of change was found \( F(6,300) = 0.83, P = 0.55 \). Unlike the analysis of the pros scale, the overall model for the cons scale did explain a significant amount of variance \( F(11,300) = 6.98, P = 0.0001 \). Both stage of change \( F(3,300) = 5.78, P = 0.0007 \) and ethnicity \( F(2,300) = 4.42, P = 0.013 \) main effects were significant. A significant interaction between stages of change and ethnicity was also identified \( F(6,300) = 5.25, P = 0.0001 \).

The significant interaction between ethnicity and stage of change in the analysis of decisional balance and negative perceptions suggests that the patterns of means across stages of change should be examined for each ethnic group separately. Figure 1 presents the mean pro and con scores across the stages of change for each ethnic group. One-factor analyses of variance assessing the relationships of decisional balance, pros and cons to stages of change were estimated for each ethnic group separately. These results are available from the authors.

For the Cambodian smokers, the cons were always reported to be more important than the pros, regardless of stage of change (Figure 1a). However, the gap between the two did widen with each step forward in the behavior change process; thus, the decisional balance scores were more negative in the later stages of change. The importance of the cons was particularly salient for the former smokers in the maintenance stage.
Fig. 1. Mean pro and con scores across the stages of change by ethnic group. (a) Cambodian males, (b) Laotian males and (c) Vietnamese males.

Laotian decisional balance scores more closely resemble those found among non-minority smokers in the US (Figure 1b). The importance of the cons for the smokers in the precontemplation stage is somewhat anomalous; however, the importance of the cons in the preparation/action stage and the maintenance stage is as expected. The importance of the pros did not differ across the stages of change.

Figure 1(c) presents the results for the Vietnamese men. The importance of the cons is consistently much higher than that of the pros across all of the stages of change. Thus, across all four stages, Vietnamese men show a decisional balance...
similar to that of former smokers. With the exception of an increase in the importance of the cons from precontemplation to preparation/action, smoking cessation appears to be unrelated to decisional balance for these men.

The number of years that refugees and immigrants live in their adopted country has an effect on their attitudes toward health behavior (Anderson et al., 1993). The men in this study lived in the US from less than 1 to 24 years. To assure that the effect of ethnicity was not simply reflecting differences between the ethnic groups in terms of length of time in the US, a two-factor analysis of covariance was conducted for each of the three outcome variables, using number of years having lived in the US as the covariate. The main effect of ethnicity remained significant for decisional balance \[ F(2,300) = 6.38, P = 0.002 \], the pros \[ F(2,300) = 7.48, P = 0.0007 \] and the cons \[ F(2,300) = 3.24, P = 0.04 \], indicating that differences between the ethnic groups in the number of years having lived in the US does not explain differences among ethnic groups in terms of the decisional balance constructs.

Discussion

The expected decisional balance pattern was that the cons of smoking would be of less importance than the pros for those smokers in the precontemplation stage; that the pros and cons would intersect at the contemplation stage; and that the cons would be of greater importance than the pros in the later stages of change. However, the SE Asian men in this study did not exhibit these decisional balance patterns. The only aspect of the patterns that was consistent with the hypothesized pattern was that mean decisional balance scores for precontemplators and contemplators were significantly more positive than mean scores for preparation/action and maintenance subjects. Differences in decisional balance resulted from an increase in the importance of the cons in the later stages of change rather than from a corresponding decrease in the importance of the positive aspects of smoking.

Prochaska et al. (1994) have recommended that the stages of change and decisional balance constructs be applied to different subgroups. However, they advise that cultural differences must first be addressed. Although the pros and cons scales developed for this study demonstrated adequate inter-item reliability for the SE Asian men, perhaps the constituent items did not tap the issues that were of most importance to this group. This may have been particularly true of the pros scale (which showed little relation to the stages of change). Five of the seven items measuring the positive perceptions of smoking were related to utilitarian gains for oneself (e.g. cigarettes allow the smoker to relax, to think better and to reduce feelings of sadness or loneliness). Perhaps this scale could be made more relevant by adding items that address the positive role of cigarettes in one’s cultural community or in one’s family. For example, through our discussions with SE Asian smokers, they have indicated that tobacco is often incorporated into religious ceremonies. Following a wedding ceremony, cigarettes are typically distributed to all of the guests. Rather than offend his host, the SE Asian smoker is inclined to accept. Perhaps the importance that a smoker assigns to such community functions would be related more strongly to the stages of smoking cessation than was the importance assigned to personal utilitarian gains.

In addition, 11 of the 14 items that were included in the scales represented the Janis and Mann (1977) categories of utilitarian gains and losses for oneself and others, with only three items related to self or other approval. This finding is consistent with the common belief among SE Asians that respect is based on age, wisdom and propriety (Muecke, 1983; USDHHS, 1994). In the presence of such a strong tradition, cigarette smoking may understandably have little relation to self-concept or the approval of others.

Another potential explanation for the lack of expected relationships between decisional balance constructs and smoking cessation may be problems with this type of data collection among members of these cultural groups. Among the original 24 items, some personal issues such as loneliness,
Decisional balance among Southeast Asians

sadness, concern for loved ones, self-control and self-approval were addressed. Even when carefully worded, these questions may have been difficult for SE Asian men to answer. According to the Ohio Commission on Minority Health (USDHHS, 1994), a careful and sometimes evasive politeness is a strong part of all SE Asian cultures. Maintaining propriety is of the utmost importance in awkward social situations. Therefore, if any questions made the SE Asian men uncomfortable, they might be prone to provide non-committal or perhaps socially appropriate responses. This would introduce measurement error and reduce the validity of the data collection procedure.

Another issue that may not have received enough attention in this study was the extent to which participants have beliefs about the causes of ill health that compete with those that acknowledge the ill health effects of smoking. For example, some of the SE Asian men in this community have voiced a strong sense of fatalism, reporting that smoking-related health problems stem from external factors such as bad luck. Others have attributed a community member’s cancer to immoral lifestyle choices. Further investigation in these areas may result in a more clearly interpretable decisional balance scale for SE Asians.

The differences among the ethnic groups in terms of the relationship between decisional balance constructs and smoking cessation indicates that we must guard against ignoring important ethnic distinctions. The first group of Vietnamese refugees arrived in the US in 1975. This wave of refugees came from well-educated, financially stable backgrounds. The second group of Vietnamese began arriving in the US at the same time as refugees from Laos and Cambodia. They were from primarily rural areas, less educated and not financially stable. Of all three ethnic groups, the Cambodian refugees may have suffered the most (USDHHS, 1994). The Cambodians who were able to escape the genocidal policies of the Khmer Rouge were often illiterate in their own language as well as English. Twenty years later, these ethnic groups have distinct traditions, problems and resources. Thus, it is not surprising that each of the ethnic groups exhibited unique decision-making processes.

A limitation of this study is its cross-sectional design. When longitudinal data examining the link between decisional balance and progression through the stages of change among this population become available, a more rigorous examination of the ability of decisional balance scores to predict stage change will be possible. Given the suspected differences SE Asians and Westerners place on the value of time (Chen et al., 1993; USDHHS, 1994), this type of study should be quite informative.

Conclusion

The constructs of the Transtheoretical Model provide a comprehensive method of studying problem behavior change. To effectively work with the SE Asian population, the decisional balance instrument was modified and data collection was conducted according to the Indigenous Model. This investigation has served as a first step toward the application of the Transtheoretical Model to the smoking cessation processes of the SE Asian smoker. Only with the development of appropriate data collection methods and measures will our understanding of these processes deepen, and our ability to develop culturally appropriate and ethnically sensitive interventions for the SE Asian smoker be enhanced.

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References


