

## RESEARCH ARTICLE

# Time Orientation Needs To Be Considered When Engaging In Cardiovascular Risk Counseling With South Asians

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### Abstract

**Background:** Healthcare providers tend to have a future orientation when discussing disease risk with patients. It is unclear whether this approach is effective with south Asians relative to Whites residing in Canada.

**Methods:** This was an exploratory study in which south Asian (100) and White (100) people were surveyed using the Zimbardo Time Perspective Inventory. Mean subscale scores and their ranking were compared between ethnic, ethnic and sex, as well as ethnic and age groups.

**Results:** South Asians had higher present-fatalistic and future time orientation scores than Whites. South Asians who had immigrated  $\geq 5$  years ago (and who were older), had higher present-fatalistic, but not future orientation scores, than those who had immigrated more recently or who were Canadian-born (and were younger). Women (particularly south Asian women) had higher past-negative and present-fatalistic scores than men. South Asians  $\geq 65$  years had higher past-negative, present-hedonistic, and present-fatalistic than Whites. Past-positive was differentially ranked highest by the greatest proportion of both south Asians (39%) and Whites (66%).

**Conclusions:** Present-fatalistic orientations are associated with certain subgroups of the south Asians studied (those who had immigrated to Canada  $\geq 5$  years previously, were older, or were women). The findings question the appropriateness of delivering future-oriented health promotion interventions to south Asians, who may be more fatalistic.

**Key words:** time orientation, south Asian, survey

## 1.0 Introduction

South Asians (those whose ancestors originate from India, Pakistan, Bangladesh, Sri Lanka or Nepal<sup>1</sup>) develop cardiovascular disease at higher rates and at an earlier age than do (European) Whites, have double the rate of diabetes and are more prone to becoming overweight, resulting in higher rates of disability, as well as morbidity and mortality from preventable diseases.<sup>2-5</sup> There is a growing volume of cardiovascular health information specific to south Asians, but there is little evidence that it is appropriately conveyed to members of this population.<sup>6</sup> South Asians residing outside of their home countries continue to have less knowledge about heart disease symptoms<sup>7,8</sup> and heart disease prevention and management,<sup>6,7,9</sup> and are less adherent to taking cardiac medications<sup>9,10</sup> than their White counterparts. It is possible that a lack of appropriate information transfer might contribute to these discrepancies in both reported knowledge and health behaviors.

Though people may be able to identify cardiovascular risk factors, their perceptions regarding how these risk factors influence their own heart disease (or its potential) are influenced by culturally-based views.<sup>11-14</sup> For example, qualitative studies by our group have shown that south Asians may believe heart disease is a sudden event and not a chronic illness.<sup>15-17</sup> Further, when acquiring an illness is perceived as being associated with factors outside of one's control (e.g., God, weather, fate), processing of health information and health behavior change are not seen as a priority, and south Asians will often stop taking medication when symptoms subside.<sup>11,15-17</sup> These observations led us to

consider 'time orientation' (a fundamental and culturally-based view that people use to contextualize and organize their life experiences, and which plays a role in daily decision-making,<sup>18</sup> as a potential underlying factor in south Asians' perceptions regarding heart disease and its management.<sup>19</sup>

There are three main categories of time orientation: past, present, and future. Having a future orientation has been associated with better medication adherence among patients with hypertension and diabetes<sup>20</sup> (for which south Asians are at increased risk<sup>21</sup>), taking greater health responsibility in cardiac rehabilitation programs,<sup>22</sup> and engaging in positive health behaviors, including exercise.<sup>23,24</sup> Preferential ordering of these time orientation categories (or their sub-categories) is associated with age, gender and culture (which may vary by ethnicity). For example, younger age is associated with greater present and less future orientation, possibly enhancing risk-taking behavior.<sup>25</sup> Older age has been associated with less negative views of the past and less hedonistic views of the present.<sup>26</sup> Women may tend to have greater orientation to the future.<sup>27</sup> Variability in time orientation has also been linked to different cultures (e.g., indigenous cultures tend to have a greater value for past).<sup>28</sup>

While time orientation might inform receptiveness to health promotion efforts and impact health behavior change, it has not been evaluated in the unique cultural milieu<sup>29</sup> of the south Asian population. The main objective of this exploratory study was to examine and document time orientation patterns of south Asian people residing in Canada, relative to their White counterparts.

Characterizing trends toward time orientation in south Asians may offer guidance in optimizing the development of educational and behavioral interventions aimed at improving cardiovascular health in this group.

## **2.0 Methods**

### **2.1 Design, setting and participants**

This study protocol was reviewed and approved by the Conjoint Ethics Review Board of the University of Calgary. Thereafter, we conducted a cross sectional survey of south Asian and White people, residing in a large western Canadian city (population estimated at >1.23 million in 2016) that is home to the third largest urban population of south Asians in the country.<sup>30</sup> Approximately 9% of people residing in this city in 2016 identified as south Asian.<sup>31</sup> Inclusion criteria were: adult ( $\geq 18$  years) men or women community-dwelling person; self-reported their ethnicity as either south Asian, or White (of European heritage); and who spoke English or Punjabi (the most frequently spoken of the south Asian languages in Canada<sup>29</sup>). Exclusion criteria included: persons of self-identified multiple ethnic origins or resided in a dependent-living (e.g., nursing home, extended care facility) environment. Potential participants were accessed through two means: (1) a cohort of acute coronary syndrome (esACS) patients, and (2) community events. Given there were more White than south Asian esACS study participants, and more south Asian men than women participants, these two mechanisms were used to obtain the study sample. esACS study participants agreed to be contacted to participate in future

research studies. Eligible people were identified and contacted by telephone to inquire about study participation. The study objective and processes were explained and agreement to participate was sought. We also attended a number of community events (e.g., cultural and religious celebrations) in which people from both ethnic groups were invited to learn about the study and agree to participate. We did not undertake a sample size calculation for this exploratory study.

### **2.2 Data collection**

Before proceeding with the study, we established translation as well as conceptual equivalence<sup>32,33</sup> of study materials for the Punjabi language by using a rigorous process previously described by our group.<sup>34</sup> Data collection was undertaken either by telephone interviews (with which our group has had much success<sup>35</sup>), or in person, as preferred by the participant.

### **2.3 Measures**

Initially, demographic data were collected using an investigator-developed questionnaire. Time orientation was then measured using the Zimbardo Time Perspective Inventory (ZTPI), a 56-item questionnaire using a series of statements to which the participant responds using a scale of 1-5 (very untrue-very true).<sup>36</sup> This scale is reliable ( $r=0.70-0.80$ ) and shows excellent discriminant and predictive validity. There are five relatively sensitive sub-scales, that represent past-positive, past-negative, present-hedonistic, present-fatalistic and future orientations (Figure 1). The higher the score in each subscale, the more relevant it is to the individual's overall time orientation.

Time orientation is also considered a multi-dimensional construct, with individuals potentially emphasizing more than one time orientation, thus ordering of sub-scales is considered important. The ZTPI has been used previously to examine time orientation as it relates to engaging in heart health risk behaviors such as smoking, obesity, sedentary behavior;<sup>24,37</sup> health promoting behavior in cardiac patients;<sup>22</sup> reactions to diabetes diagnosis;<sup>38</sup> managing chronic illness;<sup>39</sup> and medication adherence in hypertensive and diabetic patients.<sup>20</sup>

## 2.4 Data analyses

All data were entered into SPSS™ for analysis. After data entry was checked for accuracy, demographic data were analyzed to enable characterization of the study sample (using proportions for nominal/ordinal level data; means and standard deviations for interval/ratio level data). Differences in demographic data between ethnic groups were examined using Chi-square or t-tests as appropriate. The ZTPI data were analyzed based on scoring instructions found on the website [www.thetimeparadox.com/research/](http://www.thetimeparadox.com/research/). Essentially, a weighted score was calculated for each of the five time orientation subscales. The mean scores of the subscales were compared between ethnic groups, ethnic and gender groups, as well as ethnic and age groups, using t-tests and Analysis of Variance (ANOVA). The ranking of the subscales were compared between ethnic

groups, ethnic and gender groups, as well as ethnic and age groups, using Fishers Exact Test (as some cells were small and rendered using the Chi Square Test inappropriate). Finally, based on the findings from the planned analyses, a post-hoc exploratory examination of the association between age, mean subscale scores and ranking of subscales, and ‘time since immigration’ were undertaken for the south Asian participants using ANOVA or Fishers Exact Test.

## 3.0 Results

### 3.1 Participant characteristics

One hundred south Asian and 100 White participants were entered into the study. As seen in Table 1, the majority of south Asian participants were men (56%) whereas the majority of White participants were women (62%). Most study participants were less than 65 years of age. Most south Asian participants immigrated to Canada (52%  $\geq$  5 years since time of immigration), while 28% were Canadian born. Most participants were married or living in a common-law situation and had a greater than high school (or its equivalent) education. Canadian-born south Asians were significantly younger than their counterparts (noting that participants who had immigrated between 5-9 years earlier were the oldest). All surveys of white participants and 67% of surveys of south Asian participants were undertaken in English.

**Table 1.** Demographic characteristics of study sample

Characteristic (n (%))	south Asian (n=100)	white (n=100)	p-value
Men	56 (56%)	38 (38%)	0.011
<65 years of age	69 (69%)	66 (66%)	0.651
Mean age (mean (sd))	46.94 (20.13)	56.69 (17.53)	<0.001
Time to Immigration			<0.001
Canadian born	28 (28%)	90 (90%)	
<5 years	20 (20%)	--	
5-9 years	16 (16%)	--	
≥10 years	36 (36%)	10 (10%)	
Marital Status			0.001
Married/Common-law	58 (58%)	63 (63%)	
Separated/Divorced	2 (2%)	12 (12%)	
Widowed	8 (8%)	12 (12%)	
Single	32 (32%)	13 (13%)	
Education			0.199
None	4 (4%)	--	
<High school	12 (12%)	9 (9%)	
High school equivalent	15 (15%)	11 (11%)	
>High school	69 (69%)	80 (80%)	
Employment			0.004
Full-/part-time outside home	50 (50%)	51 (51%)	
Not employed	21 (21%)	6 (6%)	
Retired	21 (21%)	39 (39%)	
Homemaker (throughout life)	8 (8%)	4 (4%)	
Age and time to immigration (mean (sd))			<0.001
Canadian born	24.32 (4.51)		
<5 years	49.60 (20.18)		
5-9 years	59.75 (15.89)		
≥10 years	57.06 (14.24)		

The majority of south Asian participants (89%) and approximately half (47%) of White participants were recruited from the community ( $p < 0.001$ ). More south Asian women than men were recruited from the community ( $p = 0.002$ ). There were no differences in age group or education level between south Asians recruited through the esACS study or the community. More White participants who were <65 years of age were recruited from the community ( $p < 0.001$ ).

There were no differences in sex or education level between Whites recruited through the esACS study or the community.

### 3.2 Time orientation characteristics

Scores for the five different time orientations varied between ethnic groups. As seen in Table 2, south Asians' mean scores on all but one (past-positive) of the five time orientations were higher than the scores of White participants. Women in both

ethnic groups scored higher in the past-negative and present-fatalistic perspectives relative to men (Table 3) and south Asian women’s scores were higher than White women’s scores in these domains. Finally, older south Asians ( $\geq 65$  years) scored higher

in the past-negative, present-hedonistic, and present-fatalistic perspectives; and older Whites scored higher in the past-positive orientation than their younger counterparts (Table 4).

**Table 2.** Ethnic differences between time orientation perspectives

	south Asian mean (SD)	white mean (SD)	p-value
Past-Positive	3.79 (0.49)	3.96 (0.56)	0.024
Past-Negative	3.15 (0.71)	2.84 (0.74)	0.003
Present-Hedonistic	3.53 (0.50)	3.38 (0.43)	0.026
Present-Fatalistic	2.98 (0.73)	2.45 (0.70)	<0.001
Future	3.69 (0.51)	3.54 (0.49)	0.033

**Table 3.** Ethnic and sex differences between time orientation perspectives

	south Asian		white		p-value
	men mean (SD)	Women mean (SD)	men mean (SD)	women mean (SD)	
Past-Positive	3.83 (0.52)	3.75 (0.45)	3.90 (0.59)	4.00 (0.54)	0.084
Past-Negative	3.12 (0.74)	3.19 (0.68)	2.73 (0.69)	2.91 (0.77)	0.017
Present-Hedonistic	3.51 (0.49)	3.56 (0.53)	3.29 (0.45)	3.44 (0.41)	0.061
Present-Fatalistic	2.84 (0.71)	3.16 (0.73)	2.35 (0.67)	2.51 (0.71)	<0.001
Future	3.74 (0.52)	3.63 (0.49)	3.50 (0.56)	3.56 (0.46)	0.121

**Table 4.** Ethnic and age group differences between time orientation perspectives

	south Asian		white		p-value
	<65 years mean (SD)	$\geq 65$ years mean (SD)	<65 years mean (SD)	$\geq 65$ years mean (SD)	
Past-Positive	3.74 (0.47)	3.91 (0.51)	3.90 (0.59)	4.07 (0.47)	0.022
Past-Negative	2.98 (0.69)	3.51 (0.64)	2.87 (0.72)	2.78 (0.78)	<0.001
Present-Hedonistic	3.45 (0.44)	3.72 (0.59)	3.37 (0.41)	3.41 (0.47)	0.005
Present-Fatalistic	2.76 (0.62)	3.47 (0.73)	2.40 (0.69)	2.54 (0.69)	<0.001
Future	3.63 (0.51)	3.81 (0.49)	3.55 (0.49)	3.51 (0.51)	0.061

### 3.3 Time orientation ranking

The ranking of the orientations also varied by ethnic group. Though the past-positive orientation was ranked the highest in both ethnic groups, south Asians were less likely to have ranked this orientation as highest relative to whites (Table 5). Indeed,

south Asians rankings for primary orientation were more widespread than were the rankings for whites. The second order rankings remained more widespread for south Asians relative to whites. Past-positive, present- hedonistic, present-fatalistic and future orientations were most notably

differentially ranked between south Asians and Whites such that south Asians were more likely than whites to identify past-positive and present-fatalistic orientations as their second order perspective. There were no sex differences in the proportion of men and women in either ethnic group for ranking the past-positive orientation as highest (south Asian men 39.3%, women 38.6%,  $p=1.00$ ; white men 65.8%, women 66.1%,  $p=1.00$ ). However, there were age differences in the proportion of younger and older persons in

each ethnic group for ranking past-positive orientation as highest (south Asians <65 years 43.5%,  $\geq 65$  years 29.9%,  $p=0.048$ ; whites <65 years 59.1%,  $\geq 65$  years 79.4%, 0.036). The older south Asians were less likely to identify past-positive as the highest orientation relative to their younger counterparts and conversely, the younger whites were significantly less likely to rate the past positive-perspective as highest relative to their older counterparts.

**Table 5.** Ethnic differences in order of perspective preference

	Past-Positive	Past-Negative	Present-Hedonistic	Present-Fatalistic	Future	p-value
<b>#1 Perspective</b>						
south Asian	39 (39%)	11 (11%)	14 (14%)	5 (5%)	31 (31%)	0.004
white	66 (66%)	8 (8%)	7 (7%)	2 (2%)	17 (17%)	
<b>#2 Perspective</b>						
south Asian	28 (28%)	10 (10%)	24 (24%)	12 (12%)	26 (26%)	0.021
white	18 (18%)	8 (8%)	33 (33%)	3 (3%)	38 (38%)	

**3.4 Time orientation and ‘time since immigration’ in south Asian participants**

Canadian-born south Asians scored lower on nearly all subscales relative to those who immigrated to Canada (Table 6). Mean scores for the present-fatalistic orientation were significantly different between groups, with Canadian-born south Asians having the

lowest present-fatalistic scores and those who had immigrated  $\geq 5$  years ago had the highest. This pattern (highest scores for those who immigrated  $\geq 5$  years ago) was quite consistent across the time orientations. There were no significant differences when examining ranking of subscales and time since immigration ( $p=0.668$ ).

**Table 6.** Differences in time orientation based on time south Asians time from immigration

	Canadian-Born	<5 years	5-9 years	$\geq 10$ years	p-value
Past-Positive	3.72 (0.53)	3.77 (0.51)	3.88 (0.42)	3.83 (0.49)	0.725
Past-Negative	2.94 (0.59)	3.18 (0.87)	3.30 (0.57)	3.23 (0.76)	0.300
Present-Hedonistic	3.53 (0.39)	3.42 (0.53)	3.75 (0.35)	3.52 (0.61)	0.240
Present-Fatalistic	2.54 (0.51)	2.88 (0.79)	3.28 (0.68)	3.24 (0.72)	<0.001
Future	3.59 (0.58)	3.64 (0.62)	3.85 (0.30)	3.73 (0.45)	0.367

#### 4.0 Discussion

We illuminated differences in time orientation perspectives in south Asians relative to Whites, in this exploratory study. Overall, south Asians had higher present-fatalistic and future time orientation scores than their white counterparts. Given that these orientations are inconsistent, we examined the influence of time to immigration and age on the time-orientation scores. South Asians who had immigrated to Canada  $\geq 5$  years ago (and who were in their sixth decade of life), were more likely to demonstrate higher present-fatalistic, but not future orientation scores, than those who had immigrated more recently or who were Canadian-born (and were younger). This is a particularly salient finding for two reasons. First, south Asians have a greater incidence of and tend to develop heart disease at a younger age relative to Whites.<sup>2-5</sup> South Asian participants in our study who were  $\geq 60$  years of age (and younger) were at increased risk for cardiovascular disease and could benefit from health promoting interventions. Second, having a present-fatalistic orientation (i.e., a belief that what one does today will not have any real influence in the future<sup>18</sup>) makes preventative counselling (a process typically based efforts to influence health behavior change through education around risk reduction of future events) potentially problematic and ineffective.

Contrary to other findings suggesting that women may have a greater future orientation than men,<sup>27</sup> women in our study, and south Asian women in particular, demonstrated higher past-negative (i.e., unhappy beliefs about the past which affect current thoughts,

feelings and behaviors<sup>18</sup>) and present-fatalistic domains than men. This means that they perceived less sense of control over themselves and their future (e.g., self-efficacy, a critical component of health self-management).<sup>40,41</sup> South Asian women, particularly those who are at home with children (often grandmothers), are already at greater risk for having their health needs placed in a lesser status than those ‘working’ members of the family.<sup>15,16</sup> Further, they may also have culturally-related beliefs about the major causes of heart disease. For example, ‘sadness of the heart’ (e.g., being heart broken, being lonely) was identified by south Asian women in our previous work as the genesis of their heart disease. In this circumstance, participants did not appreciate medically recognized risk factors.<sup>15</sup> Once again, well-meaning but untailed health promotion efforts aimed at providing basic information and advice around health behavior change might be expected to fail in this context.

Older south Asians who had higher past-negative, present-hedonistic, and present-fatalistic scores relative to younger south Asians or whites might also not be expected to respond to traditional health promotion interventions.

#### 4.1 Limitations

This study has certain limitations associated with external validity of the study findings. First, this study has a small sample size which is not population-based (i.e., not randomly selected or representative of the populations studied). Thus, the findings represent a snapshot of time orientations from a non-random sample of participants



and potential differences between groups may not have been illuminated due to the small sample size. We used two means to obtain our study sample: asking ACS patients who had participated in a previous study, and attending community events to recruit new participants. It is possible that people who had a previous cardiac event, could have different characteristics and views about time orientation relative to those who had not. We did not account for this in our analysis. Our sample was also reasonably high in socioeconomic status, with 84% of south Asians and 91% of Whites reporting high school or post-secondary educational attainment. Having a higher socioeconomic status has been associated a greater likelihood of having a future time orientation.<sup>19</sup> Of those south Asians who were non-English-speaking, all spoke Punjabi (most often associated with Sikhism), and do not necessarily represent all south Asians (e.g., those who are Hindu or Muslim). Though the Sikh and Hindu religions are quite similar, it is possible that we did not capture variability associated with some religious nuances. Those who were English-speaking were more likely to have been born in Canada or lived in Canada for a sufficient period of time to become somewhat acculturated or, at least, changed (but not necessarily toward the ‘dominant’ norm) from those who live in their home countries.<sup>29</sup> These limitations have implications for further study, which include recruiting a large population-based sample.

## 4.2 Conclusions

There are differences in time orientation that may affect health-related communication

with south Asian patients. In particular, present-fatalistic orientations were associated with certain subgroups of the south Asians studied (those who had immigrated to Canada  $\geq 5$  years previously, were older, or were women). These findings have significant implications for how traditional, standardized health promotion interventions are received by this group of people who are at increased risk for cardiovascular (and other) diseases.

When health information is presented a culturally-competent manner, the desired change in behavior (e.g., reduction of sodium in the diet) or other measurable outcomes (e.g., reduction in blood pressure) are more achievable.<sup>42-49</sup> Providing culturally-competent care means that communication between health care providers and their patients must be ‘patient-centered’<sup>50</sup> to meet their social, cultural, and linguistic needs. Effective communication between health care providers and patients is essential to ensuring adherence to recommendations and improving health outcomes.<sup>19</sup>

Time orientation should be considered in health care provider-patient communication and in particular when developing and evaluating health behavior change interventions.<sup>18,19,28</sup> Health care providers tend to have a ‘future’ orientation and focus on adherence to a particular regimen and the potential short- and long-term benefits of doing so. Patients who do not share the same orientation may not be receptive to this type of appeal.<sup>19</sup> Western health systems reward responsibility and accountability (self-care) by emphasizing self-knowledge, -surveillance, and -management, and individual’s capacity to successfully interact

with health care providers and the healthcare system.<sup>51</sup>

South Asians tend to expect (and readily accept) hierarchical distance and formal authority quite readily.<sup>29</sup> Thus, older south Asians in particular, may experience difficulty with the patient-oriented approach (i.e., partnership with healthcare provider and patient) seen in western healthcare and are much more aligned with being given specific instructions to follow. Behavioral interventions in general, and healthcare provider communication in particular, might be more effective with south Asian patient when explanations of why recommendations

are made; even in the absence of symptoms (consistency). In this context, it also appears important to ask patients to elucidate their rationale for decisions around health behaviors.<sup>52</sup> Given that presenting south Asians may possess a fatalistic time orientation, adherence to treatment recommendations could benefit from forming associations with important, patient-identified ‘in the moment’ variables such as ‘being there’ or caring for family—which is central to the south Asian culture.<sup>19,29</sup>

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