HEALTH-PROMOTING BEHAVIORS AND HEALTH LOCUS OF CONTROL FROM A MULTICULTURAL PERSPECTIVE

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Objectives: To assess the relationships between health-promoting behaviors and health locus of control (HLC) in the context of cultural differences between Jewish and Arab Israelis.

Methods: A random, population-based sample of 358 Jews and 162 Arabs, aged 50–75 years, participated in a telephone survey. Questionnaires included demographic variables and details on three health behaviors, namely balanced nutrition, physical activity and regular checkups, and HLC.

Results: Arab respondents, especially Arab women, reported lower internal HLC and lower engagement in physical activity, while external HLC, balanced nutrition, and attending regular checkups varied by ethnicity only. According to multiple regression analyses, Jewish ethnicity and male sex were significantly related to internal HLC, while Arab ethnicity, older age and lower education were significantly related to external HLC. Although internal and external HLC were significantly correlated with balanced nutrition and regular physical activity, the regression analysis revealed that only higher internal HLC explained the variance of balanced nutrition. The variance of all health-promoting behaviors was explained by ethnicity, while physical activity was also explained by sex, and balanced nutrition was explained by higher economic status and higher religiosity. Regular medical checkups were also explained by higher economic status.

Conclusions: Health-promoting behaviors and HLC were each mainly related to ethnicity and sex. Messages to enhance health-promoting behaviors should be adjusted culturally, especially for women. (*Ethn Dis*. 2007;17:636–642)

Key Words: Health-Promoting Behaviors, Health Locus of Control, Arab, Jewish, Sex

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INTRODUCTION

Longitudinal studies have demonstrated that health promoting behaviors, regular physical activity, and balanced nutrition (low fat consumption, inclusion of fruits and vegetables in the daily diet) are related to lower morbidity and mortality from cardiovascular and metabolic disease and various types of cancer.[1–3] Undergoing regular medical checkups according to one's age and health status is another health-promoting behavior, related to better health and lower mortality.[4,5]

Health-promoting behaviors are defined as self-initiated and enduring actions, based on an active approach, that serve to maintain or enhance the level of personal wellness.[6] It is important to understand the factors and personal characteristics that affect the perseverance of health-promoting behaviors in the adult population, in order to construct effective interventions to enhance their performance and maintenance over time.

Health locus of control (HLC) has been extensively studied in relation to health beliefs and health behaviors. It is defined as the perception an individual holds of what controls personal health.[7–9] Three dimensions of HLC have been described: internal HLC (belief that one's state of health depends on one's own behaviors and actions); powerful others HLC (belief that one's state of health depends on powerful others — mainly professionals); and chance HLC (belief that one's state of health is a matter or chance or fate). The last two dimensions are often classified as external HLC, in contrast to the internal dimension.[10–12]

According to the HLC model, individuals with internal HLC assume more responsibility for their actions and engage in health-promoting behaviors to a greater extent.[7–9] Previous studies found that higher internal HLC was positively associated with higher performance of regular physical activity,[13–15] while external HLC was negatively associated with it.[13,14–16] The same direction of relationships was shown for balanced nutrition behaviors.[15–17] However, other studies did not find a relationship between some of the HLC dimensions and physical activity or balanced nutrition.[18,19] The inconsistent findings may be due to samples not large enough to exert statistical power[18,20,21] or samples composed of different age or ethnic groups.[18,21]

The health-promoting behavior of attending regular checkups has been addressed in several studies. Bailis and colleagues [22] did not find support for the assumption that sense of mastery mediates the relationship between socioeconomic variables and regular checking of blood pressure, while mastery did mediate the relationship between socioeconomic variables and regular performance of physical activity. Screening for early detection of cancer is another component of medical checkups that was addressed by a few studies in relation to HLC. Higher attendance at screenings for breast cancer was associated with either higher internal[23] or external HLC.[24] Higher attendance at screening for colorectal cancer was associated with lower external HLC but not related to internal HLC. Still other studies found no association between HLC and screenings for breast cancer[25,26] or colorectal cancer.[27]

Sociodemographic factors have also been examined in relation to health-promoting behaviors. Previous studies pointed to several demographic factors related to maintaining health-promoting behaviors, although inconsistent

results were reported for each of the factors.[14,17,28] Regarding the role of sex, higher external HLC was found in women,[29] although Wallston and Wallston[8] detected no significant differences between men and women. Also, a considerable number of studies found that individuals with lower education and lower socioeconomic status engaged in fewer health-promoting behaviors.[8,14,28,37,30]

The role of ethnicity in health and in health-promoting behaviors was recently queried.[31] Previous studies reported that minority groups in the United States, especially women, engaged less in regular physical activity[32,33] and in regular checkups or screening behaviors [34,35] than White Americans. Regarding balanced nutrition, results were inconsistent and differed among ethnic groups.[36] People from minority groups also had higher external HLC beliefs than White Americans, though differences were not found regarding internal HLC.[30,37,38] These findings were attributed to lower economic status, lower education, lower English literacy, or traditional beliefs such as belief in fate.[30,37] In other studies, higher internal and higher external HLC were also found among minority groups.[31] For example, South Asian women[29] and Filipino American college students[31] in the United States scored higher on internal and on external HLC than did White Americans or other ethnic groups.

Israeli Jews constitute 76% of the population, and the Arabs in Israel constitute 19.5%.[42] Most Arabs are religious (54%) or mildly religious (23%), living in Arab towns and villages or in Arab neighborhoods. Only 17% of the Jews are religious and 38% are mildly religious.[42] The two populations differ in their cultural characteristics and values, but the Arabs living in Israel are undergoing a major modernization processes, resulting from higher urbanization, more education for men and women, more women working outside the home, and greater use of health and other services.[44] Still, it is more collectivistic, patriarchal and male-dominant society, and social norms such as family and group cohesiveness are strictly kept.[39,44]

Studies on Jewish and Arab culture in relation to health behaviors and beliefs are scarce. Al-Krenawi and Graham[39] asserted that Arab people tend to perceive forces outside the individual as causing illness, thus expressing higher external HLC. According to these authors, these perceptions are incorporated in the cultural belief system and are thus not always related to level of education. In contrast to the fatalistic view, other scholars assert that the Islamic religion stresses that individuals should take personal responsibility for their heath and that it encourages active health-promoting behaviors, such as balanced nutrition and personal hygiene.[40] Also, living a religiously observant life is rewarded by God, who preserves his believers' health and well-being.[41] Among the Jews, views on health differ between the large secular majority and the religious minority. Secular Jews, and most of the mildly religious too, hold a Western view on health, namely that the individual strives to master and be responsible for her/his health.[45,46] In contrast, religiously orthodox Jews believe that God controls the individual's life and fate. This view nurtures an external locus of control over health.[46,47] No study that examined HLC beliefs in Israeli Jews and Arabs could be located, so consequently, the present study aimed to compare HLC and health-promoting behaviors in male and female Jewish and Arab Israelis and to assess them in relation to demographic characteristics.

METHODS

Participants and Procedures

This study was part of a larger research project intended to assess behaviors related to screening for early detection of colorectal cancer. A population-based random sampling of the Israeli population was conducted within each sector (Jewish/Arab) by the random digit dialing method. The Arab population was oversampled to provide an adequate sample size. One person from each household was interviewed in that person's language: whoever answered the phone was asked to respond if he/she was 50–75 years old; otherwise, another family member who was eligible was asked to do so. A total of 173 Jewish and 56 Arab respondents refused, and 28 and 10 respondents, respectively, withdrew during the interview. Refusal rate in the Jewish sample was 35.5% and in the Arab sample 22.7%. Thus, the final sample consisted of 358 Jewish and 162 Arab respondents.

Instruments

Demographic details covered age, sex, ethnicity (Jewish/Arab), family status, education, perceived economic status, and perceived level of religiosity. HLC was assessed by using the Health Locus of Control Scale.[7] The internal HLC subscale was composed of five items, and the external HLC subscale was composed of six items. Varimax rotation analysis confirmed the two-factor structure. Answers ranged from 1 = strongly disagree to 5 = strongly agree. The questionnaires were translated from English to Hebrew and Arabic by two bilingual experts using the back-translation method. Cronbach's alpha was .78 for internal HLC and .82 for external HLC.

The Health-promoting Behaviors Questionnaire was adopted from the health motivation subscale in the health belief model.[44] It consisted of three questions regarding eating balanced meals, exercising regularly, and having regular medical checkups. Answers ranged from 1 = strongly disagree to 5 = strongly agree. The correlation between the nutrition and the exercise variables

Table 1. Demographic characteristics of the sample

Characteristic	Jewish Respondents		Arab Respondents	
	Male *n*=168	Female *n*=190	Male *n*=80	Female *n*=82
Age, mean ± SD	61.55 ± 6.80	60.70 ± 6.56	59.58 ± 6.89	58.67 ± 7.25
Range	50–75	50–75	50–75	50–75
No. of children, mean ± SD	2.88 ± 1.55	2.94 ± 1.56	4.76 ± 2.54	4.55 ± 2.75
Range	0–13	0–13	0–13	0–13
Education (years), mean ± SD	14.19 ± 3.26	14.21 ± 3.31	11.17 ± 4.38	9.44 ± 4.42
Range	0–30	2–22	0–22	0–18
Family status , *n* (%)*				
Married/living together	142 (86.6)	147 (77.4)	79 (98.8)	68 (82.9)
Not married	22 (13.4)	43 (22.6)	1 (1.2)	14 (17.1)
Working outside home, n (%)†				
Yes	124 (75.2)	128 (67.4)	58 (72.5)	23 (28.0)
No	41 (24.8)	62 (32.6)	22 (27.5)	59 (72.0)
Economic status, *n* (%)‡				
Very good/good	72 (43.7)	70 (37.9)	27 (33.7)	17 (20.7)
Intermediate	82 (49.7)	102 (55.1)	38 (47.5)	51 (62.2)
Very bad/bad	11 (6.6)	13 (7.0)	15 (18.8)	14 (17.1)
Degree of religiosity, *n* (%)‡				
Secular	103 (63.2)	119 (62.6)	23 (29.9)	16 (19.5)
Mildly religious	45 (27.6)	47 (24.7)	34 (44.2)	35 (42.7)
Moderately Religious	12 (7.4)	20 (10.5)	18 (23.3)	23 (28.0)
Very religious	3 (1.8)	4 (2.2)	2 (2.6)	8 (9.8)

* Two responses are missing. †Three responses are missing. ‡Eight responses are missing.

was .39, while the correlations for these two variables with medical checkup attendance were .13 and .24, so the items were analyzed separately.

Statistical Analysis

Data analysis was conducted with SPSS software. Due to an unrepresentative ratio of men and women in the sample, all analyses applied sampling weights according to the proportion of men and women in the 50–75 age range in the Israeli population. Descriptive statistics and χ^2 values were calculated. In addition, data analysis included two-way analysis of variance (ANOVA) to test differences in HLC and health-promoting behaviors according to ethnicity and sex. Effect size estimates (partial η^2) were reported to indicate the proportion of variance that was accounted for by an effect.[48] In general, effect-size values for partial η^2 (η_p^2) are regarded as small at .01, medium at .06, and large at .14.[48] The relationship between demographics, HLC, and health-promoting behaviors was assessed using correlation analysis, followed by Bonferroni correction for multiple comparisons. Then multiple regression analyses were conducted for HLC and for health-promoting behaviors, by means of the enter method.

RESULTS

The Arab respondents were younger than the Jewish ones ($F[1, 517]=5.22$, $P<.05$), had on average more children in their family ($F[1, 517]=80.20$, $P<.001$), and had a lower level of education ($F[1, 517]=120.42$, $P<.001$) (Table 1). Lower education levels were more evident for women than men (F [1, 517]=5.76, $P<.05$), and the lowest levels of education were found among Arab women ($F[1, 517]=6.11$, $P<.05$). A similar distribution of family status was found among Jews and Arabs. Nor was there any difference between Arab and Jewish men in rate of employment ($\chi^2[1] =.20$, $P>.05$), although significantly fewer Arab women worked than Jewish women ($\chi^2[1] =35.86$, $P<.001$). Arab men and women reported lower economic status than Jewish men and women ($\chi^2[1] =9.72$, $P>.05$) and ($\chi^2[1] =14.26$, $P>.01$, respectively). More Arab men and women reported being religious than did Jewish men and women ($\chi^2[1] =26.28$, $P>.001$) and ($\chi^2[1] =49.61$, $P<.001$, respectively).

Arab respondents reported lower internal HLC and higher external HLC, together with lower engagement in each of the health-promoting behaviors (Table 2). Women reported lower internal HLC than men, but the difference in external HLC was not significant. Women engaged less than men in physical activity, but reported similarly to men on balanced nutrition and checkups. The interaction of ethnicity and sex was significant on internal

Table 2. Health locus of control and health-promoting behaviors, by sex and ethnicity

	Jewish Respondents				Arab Respondents						
	Male *n*=168		Female *n*=190		Male *n*=168		Female *n*=190		*F* (1, 514)		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Ethnicity (effect size)	Sex (effect size)	Ethnicity x Sex (effect size)
Internal HLC	3.57	.93	3.34	.90	3.41	.96	2.91	.98	6.31 (.02)*	10.79 (.02)**	4.69 (.02)*
External HLC	3.18	.94	3.23	.94	3.51	.82	3.76	.62	24.58 (.05)***	3.17 (.01)	1.45 (.01)
Physical exercise	3.49	1.39	3.30	1.43	2.86	1.52	2.32	1.47	33.48 (.06)***	6.79 (.02)**	4.80 (.01)*
Balanced nutrition	3.57	1.14	3.78	1.18	3.52	1.35	3.27	1.63	4.12 (.01)*	.14 (.00)	3.58 (.00)
Regular checkups	3.76	1.29	3.90	1.27	3.60	1.55	3.52	1.65	4.20 (.01)*	.04 (.00)	.70 (.00)

* $P<.05$; **$P<.01$; ***$P<.001$.

HLC and on physical activity, indicating lower internal HLC and lower physical activity among Arab women than among Arab men and Jewish men and women. Low-to-medium effect size was found for the significant differences.

Internal HLC was negatively associated with sex, with women having lower levels of HLC than men (Table 3). External HLC was positively associated with ethnicity and religiosity and negatively with education. Namely, higher external HLC was found for the Arab respondents and among more religious (Jewish and Arab) respondents and in respondents with lower education. Regarding associations between HLC and health-promoting behaviors, physical activity and balanced nutrition were positively associated with internal HLC and negatively associated with external HLC. That is, respondents with higher internal HLC or lower external HLC reported more on these two health behaviors. No significant associations were found for regular checkups and HLC. Performance of physical activity was negatively associated with ethnicity and positively associated with education and economic status. Namely, Arab respondents and either Jewish or Arab respondents with lower economic status and lower education performed less physical activity. Balanced nutrition was positively associated with economic status, and regular checkups were associated with ethnicity and age, pointing to lower attendance by Arabs respondents, and higher attendance with age. The three health-promoting behaviors were positively intercorrelated. Following Bonferroni correction for multiple comparisons, the correlations between religiosity and external HLC and between internal HLC and sex were rendered insignificant.

Table 4 presents multiple regression analyses for HLC. Ethnicity and female sex were significant contributors to explaining the variance of internal HLC [F (7, 497)=4.40, $P<.01$], indicating that being a female and being Arab was related to lower internal HLC. Ethnicity, age, and education significantly contributed to explaining the variance of external HLC [$F(7, 497)=10.94$, $P<.001$], indicating that being Arab, of higher age, and having lower education were related to higher external HLC.

Table 5 presents the multiple regression results for health-promoting behaviors. The variance of physical activity was explained by ethnicity and sex [$F(8, 503)=11.35$, $P<.001$]: being Jewish and being male and having lower external HLC were related to the performance of regular physical activity. Balanced nutrition was predicted by

Table 3. Correlations between study variables

		1	2	3	4	5	7	8	9	10	11	12	13
1	Ethnicity[1]	–											
2	Sex[1]	−.09	–										
3	Age	−.08	.06	–									
4	Education	−.41***	.03	−.08	–								
5	Family status[1]	.02	−.16***	−.19***	.01	–							
7	Economic status	−.15**	.04	−.04	.25***	−.06	–						
8	Religiosity	.36***	.01	−.02	−.34***	−.00	−.12**	–					
9	Internal HLC	−.06	−.11*	−.05	−.03	.03	.05	.01	–				
10	External HLC	.21***	.04	−.05	−.34***	−.09	.05	.10*	−.02	–			
11	Physical exercise	−.22***	−.06	.03	.17***	.01	.13**	−.07	.19***	−.12**	–		
12	Balanced nutrition	−.05	.05	.08	.02	−.03	.12**	.08	.13**	−.14**	.39***	–	
13	Regular checkups	−.18***	.04	.16***	−.01	−.08	−.04	−.04	.02	.04	.13**	.24**	–

[1]Spearman correlation *$P<.05$; **$P<.01$; ***$P<.001$.
HLC = health locus of control.

Table 4. Multiple regression for prediction of health locus of control (HLC)

Dependent variable	Internal HLC			External HLC		
Independent Variable	B	SE	Beta	B	SE	Beta
Ethnicity	−.34	.11	−.17**	.16	.10	.18**
Sex	−.25	.09	−.13**	.08	.08	.05
Age	.00	.01	.03	.02	.01	.10*
Education	−.02	.01	.03	−.06	.01	−.28***
Economic status	.07	.05	.06	−.04	.05	.08
Religiosity	.03	.06	.03	−.03	.05	−.04
R^2	.12***			.16***		

* $P<.05$; **$P<.01$; ***$P<.001$.

ethnicity, economic status, religiosity, and internal HLC $F(8, 504)=4.19$, $P<.001$]. Namely, Jewish ethnicity, higher economic status, lower religiosity, and higher internal HLC were related to more balanced nutrition. Regular medical checkups were explained by ethnicity and by economic status [$F(8, 501)=3.93$, $P<.01$]. Thus performing more regular checkups was related to being Jewish and to better economic status only. The dependent variables contributed 14% to the explained variance of physical activity and balanced nutrition and 6% to the variance of regular checkup performance.

DISCUSSION

The present random, population-based study is the first to examine heath beliefs and health-promoting behaviors in an Arab as compared with a Jewish population in Israel.

Arab respondents had higher external and lower internal HLC and had fewer health-promoting behaviors than the Jewish respondents. These results may reflect differences between traditional and Western health beliefs and health behaviors. Arab society, although in a process of Westernization, is still a more traditional and collectivist society.[43] Western society stresses individualism and the individual's personal responsibility for his or her welfare and thus fosters perceptions such as internal locus of control.[45,49] The traditional Arab view that health and illness depend on God's will, or on fate, is deeply rooted in the Arab society and may explain the higher external HLC. It has even been argued that these beliefs are not directly related to level of education or religiosity.[39] In line with this notion, we found that level of religiosity did not relate to HLC beliefs. Several researchers suggested that complex relationships exist between religiosity and HLC.[50] Religiosity may entail faith-based coping and belief in the power of praying (internal HLC),[51] but it may involve belief in a higher power, thus fostering a passive attitude (external HLC).[52] This duality is expressed in the Islamic[40] and Jewish[53] religious belief that one's life-course is directed by God, together with the Islamic view that each individual holds personal responsibility for his or her health. This responsibility means that believers should take active steps to preserve their health, through healthy nutrition, hygiene, and belief in God. Another possible explanation may be related to lower level of health services in Arab communities,[54] lower access to professional clinics and sense of estrangement from and mistrust of the health services offered by the state,[55] which may generate or strengthen a sense of external HLC and reduce internal HLC. Lower accessibility of and trust in health services proved related to lower utilization of health services by minority ethnic groups in the United States. [56]

Sex was also strongly associated with HLC. In line with previous studies,[29] women reported significantly lower internal HLC than men and a trend toward higher external HLC than men. This finding was explained by lower economic status and lower resources of women, especially in minority groups.[22] However, other studies found no sex-based differences.[8] Regarding Arab women, Al-Krenawi and Graham[39]

Table 5. Multiple regression for prediction of health-promoting behaviors

Dependent variable	Physical activity			Balanced nutrition			Regular checkups		
Independent Variable	B	SE	Beta	B	SE	Beta	B	SE	Beta
Ethnicity	−.73	.17	−.23***	.35	.14	−.12**	−.23	.16	−.17**
Sex	−.32	.13	−.11*	.07	.12	.03	.13	.14	.05
Age	−.02	.01	−.01	.01	.01	.06	.02	.01	.07
Education	.01	.02	.02	−.01	.02	−.02	−.02	.02	.05
Economic status	−.15	.08	−.08	.21	.07	.13**	−.19	.08	.13**
Religiosity	.06	.08	.04	.19	.07	−.12**	−.04	.08	−.02
Internal HLC	.04	.07	.03	.16	.06	.12**	.04	.07	.03
External HLC	−.06	.08	−.05	−.07	.07	.03	.08	.07	.05
R^2 (step 1)	.14***			.14**			.06***		

* $P<.05$; **$P<.01$; ***$P<.001$.

suggested that the social structure in various Arab societies tends to remain male-dominated. Consequently, women who grow up in such a society may develop a lower internal sense of control. This result may carry even broader implications: usually women play an important role in encouraging health behaviors and improvement of health services, on the community level [57] and in family settings.[58] In Arab society this pathway to health is perhaps not utilized due to lower internal HLC in women. Health professionals should devote attention and resources to empowering women to take responsibility for promoting personal and family health.

With the exception of sex and ethnicity, none of the demographic variables explained internal HLC, while external HLC was associated with lower education. Previous studies support these findings, raising the possibility that life experiences of disadvantaged groups diminish their ability to direct and regulate their choices.[59]

The health-promoting behaviors studied proved related differently to internal and external HLC. While regular physical activity and having a balanced nutrition were more typical of individuals with higher internal HLC and lower external HLC, regular checkups were not related to HLC. In the regression analysis, when the demographic variables were controlled, the only relationship that remained significant was between internal HLC and balanced nutrition. In support of similar results, Wallston[60] maintained that in most studies in this area, the relationship between health behaviors and HLC accounted for a small percentage of explained variance of health behaviors. Steptoe and Wardle[16] likewise found only modest correlations for only some health behaviors with the HLC dimensions in a very large sample of European students. This could be explained by the complexity of personality factors, demographic and situational variables, and the complex interactions between them that affect health behaviors.[60]

This study had several limitations. First, in view of its correlational nature, the results should be interpreted cautiously. Another concern is reliance on self-reports of health behaviors. Social desirability could have affected the answers. In future studies, more detailed data should be gathered regarding each of the health-promoting behaviors. Also, participation in the study was restricted to individuals with their own telephone and those able to answer it, which may rule out individuals of lower economic status or in worse health condition. In addition, a distinction should be made between types of physical activity. For example, the relationship between HLC and sports such as football, in which the social aspect is dominant, differs from the relationship between HLC and activities like walking, jogging, or exercising to keep fit.

A longitudinal study format, which will allow health beliefs and behaviors to be linked to health or disease development, should yield additional information.

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