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Tuberculosis Knowledge, Attitudes, and Beliefs in Foreign-born and US-born Patients with Latent Tuberculosis Infection

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Abstract

Foreign-born individuals comprise the majority of patients treated for latent tuberculosis infection (LTBI) in the US. It is important to understand this population's tuberculosis-related knowledge, attitudes, and beliefs (KAB) as they may affect treatment acceptance and completion. KAB in 84 US-born and 167 foreign-born LTBI patients enrolled in a clinical trial assessing treatment completion at an urban public hospital were assessed at baseline. Demographic and substance use information was also collected. Results: Of 251 participants, 66.5% were foreign-born. While misconceptions existed among both US and foreign-born regarding transmission and contagiousness of LTBI, overall knowledge scores did not differ significantly between groups. With respect to attitudinal factors, foreign-born participants were less likely to acknowledge that they had LTBI and felt more “protected” from developing TB. Improved understanding of foreign-born patients' KAB may contribute to the reduction of barriers to treatment and improved outcomes.

Keywords

Knowledge; attitudes and beliefs (KAB); Latent tuberculosis infection (LTBI); Tuberculosis; Survey; Foreign-born

Introduction

Background

Although the incidence of tuberculosis (TB) disease in the United States has declined steadily since the resurgence that peaked in the early 1990's [1], the CDC's Healthy People 2010 goal of one new case among 100,000 people is still far from achieved [2]. Current US tuberculosis control and elimination strategies include the identification and treatment of asymptomatic latent TB infection (LTBI) to prevent progression to active disease [3]. There are currently about 300,000 individuals on treatment for LTBI in the United States [4]. Effective treatment of LTBI requires that patients complete a six to nine month regimen; however, LTBI treatment completion rates are suboptimal, ranging from 18 to 65% [5].

Reasons for low adherence to LTBI treatment and low completion rates are complex. LTBI is an asymptomatic condition whose treatment does not improve patients' immediate well-being. Also, LTBI treatment duration is lengthy and requires regular monitoring for potential side effects. Evidence suggests that knowledge, attitudes, and beliefs (KAB) related to TB disease and LTBI may also impact on patients' willingness to complete LTBI treatment. These include: partial understanding of TB risk, transmission, and treatment [6–14]; unfamiliarity with the distinction between asymptomatic infection and active disease [6, 7, 9, 15]; the belief that the Bacille Calmette-Guerin vaccine (BCG), widely used in countries where TB is endemic, is protective of TB in adults and will cause a positive tuberculin skin test [15, 16]; deep concerns about TB-related stigma [10, 17, 18]; dissatisfaction with available health care for TB [19–21]; and use of culturally-specific remedies and adjuvant therapy [10, 17, 19].

Candidates for LTBI treatment in the US are primarily foreign-born [4, 22–24] and include immigrants from countries with high rates of TB. Most cases of active TB in foreign-born individuals result from activation of a previously acquired infection [25]; thus, effective treatment of LTBI in this population is an essential step toward reducing the overall rate of TB in the US. Recent studies have shown mixed results concerning adherence to treatment of LTBI, compared to US-born populations [26–29].

Conceptual Framework

The influence of KAB on health-related behaviors is well-recognized [30]. Both the Institute of Medicine's report on TB, "Ending Neglect," and the Centers for Disease Control and Prevention's response to the report called for a better understanding of KAB-related barriers and for culturally-informed strategies to address them and improve TB and LTBI treatment completion rates [31, 32]. However, most of our understanding of mechanisms through which KAB impact on patient motivation and ability to initiate and complete treatment have been conducted with TB disease.

Despite its potential impact on treatment acceptance and adherence, differences in KAB between foreign-born and US-born LTBI patients have not been explicitly assessed in prior studies. This study's objective is to assess KAB regarding TB and LTBI in a sample that includes foreign-born and US-born LTBI patients, and to determine if KAB vary among US and foreign-born patients.

Methods

Participants and Data Collection

Participants were enrolled in a randomized controlled trial, the Tuberculosis Adherence Partnership Alliance Study (RO1HL066782; Wafaa El-Sadr, PI), a study testing a peer support intervention to increase adherence to LTBI treatment. From 2001 to 2004, participants were recruited from the Harlem Hospital Chest Clinic, a public hospital located in northern Manhattan. Chest Clinic providers used prevailing CDC/ATS guidelines to determine candidacy and regimen for LTBI treatment. Study criteria were: age 18 or older, LTBI diagnosis based on tuberculin skin test results, and acceptance of self-administered LTBI treatment (nine months of daily Isoniazid, as per CDC/ATS guidelines [3]). Clinic providers referred eligible candidates accepting LTBI treatment to the research staff, who described the study and sought informed consent. All participants were interviewed at baseline in English, Spanish, or French by research assistants and received a small incentive for participating in all study interviews. The study was reviewed and approved by the Columbia University Institutional Review Board at Harlem Hospital Center.

Measures

Knowledge and attitudes concerning TB and LTBI were assessed at baseline using an instrument developed by the investigators. Knowledge items assessed participants' understanding of TB transmission, testing, and treatment. Attitudinal items were based on constructs from various theoretical models, including the Health Belief Model [33], Social Learning Theory [34], the Theory of Reasoned Action, [35] and Social Action Theory [36]. Constructs included intentions, perceived risk, perceptions of group norms, health locus of control, and perceived benefits of and barriers to treatment. Attitudinal items were measured using a four-point Likert scale, in which 1 represented "Strongly disagree" and 4 "Strongly agree."

The socio-demographic characteristics instrument included demographics, marital status, homelessness, level of education, employment status, and country of birth. A section of the Addiction Severity Instrument [37] was used to assess participants' current use of alcohol and illicit drugs, as defined as having used drugs or alcohol in the past month.

Analysis

Data were entered into a Microsoft Access database and analyzed using SPSS (version 14.1, SPSS, Inc., Chicago, IL). A total knowledge score was calculated by summing a participant's correct responses. Scales measuring perceived benefits and barriers were constructed, each combining eight items; scale reliability was assessed using Cronbach's alpha [38]. Total scores for perceived benefits and barriers were calculated as the mean of each participant's responses. Cross tabulations were used to compare differences in knowledge, attitudes, beliefs, and perceptions of barriers and benefits between foreign-born and US-born participants. A two-tailed Chi-square test, or Fisher's exact test where appropriate, was used to assess differences on categorical variables; a significance level of less than 0.05 was considered significant. *T*-tests were used to compare foreign-born and

US-born participants on continuous measures, including individual attitudinal items, the total knowledge score and the benefits and barriers scales.

Results

Participant Characteristics

Of 251 participants, 70.5% were male, 66.5% were foreign-born, and the average age was 39.1 years old (s.d. = 11.5) (Table 1). Africans comprised 36.3%, African-Americans 34.7%, and Latinos 19.5% of the sample. Of all participants, 84 (33.5%) were US-born, 94 (37.5%) were born in Africa, 54 (21.5%) in the Central America/Caribbean area, 9 (3.6%) in South America, 7 (2.8%) in Asia, and 3 (1.2%) from other countries. The countries providing the largest foreign-born groups were Senegal (20 participants), Mexico (18), Mali (15), and the Dominican Republic (10) (these data not shown in Table).

Foreign-born participants were significantly younger (mean age 36.4 vs. 44.4 years old, $P < 0.001$), and to be married or living as though married (46.7% vs. 22.6%, $P < 0.001$). US-born participants were significantly more likely to be unemployed (70.2% vs. 53.3%, $P = 0.010$), to have experienced homelessness any time in the past (56.0% vs. 21.7%, $P < 0.001$) or to be homeless in the past year (31.0% vs. 8.4%, $P < 0.001$), to be currently using illicit drugs (28.6% vs. 9.6%, $P < 0.001$), and to have received prior LTBI treatment (11.9% vs. 3.0%, $P = 0.005$).

Knowledge of TB

As shown in Table 2, most participants answered the majority of TB knowledge questions correctly. However, misconceptions regarding transmission existed among all participants, including that TB could be transmitted through kissing (23.1% correctly noted that this is false), and that one is more likely to be infected with TB by a stranger than a family member (50.6% knew that this is false). Slightly more than half (57.4%) knew that LTBI is not contagious.

Significant differences between foreign-born and US-born participants were found on some measures. US-born participants were more likely to know that TB could be easily transmitted in crowded conditions such as jails and shelters (96.4% vs. 86.2% for foreign-born participants, $P = 0.012$), that TB could not be transmitted by sharing dishes or toothbrushes with people who had TB disease (38.1% vs. 17.4%, $P < 0.001$), and that a positive skin test result does not mean that a person has active TB disease (78.6% vs. 65.3%, $P = 0.03$). Foreign-born participants were more likely to know that an undocumented person needing TB treatment could not be deported (67.1% vs. 46.4% for US-born participants, $P = 0.002$).

The overall scores in the 11-item total knowledge score were similar, with US-born participants having a mean score of 7.21 items correct, and foreign-born participants having a mean score of 6.86 items correct ($P = 0.139$).

Attitudes Towards TB/LTBI

No significant differences were found between the foreign-born and US-born participants on 10 of 17 attitudinal items (Table 3). Both groups of participants were likely to agree that TB is a serious disease (mean response 3.76 on a 4-point Likert scale), that taking TB medications is important (3.88), that the BCG vaccine prevents TB disease (2.95), and that getting TB disease can be avoided (3.37). Both groups of participants were also likely to disagree with statements suggesting that they were likely to miss some medications (mean response 1.99 on a 4-point scale), that they know better than their doctors when to stop medications (1.59), that they would be embarrassed to have their LTBI status known (2.23), that taking medications is a lot of trouble (1.60), that they didn't have time to go to the clinic (1.82), and that doctors can not be trusted (1.41).

US-born participants were significantly more likely to agree with five items than foreign-born participants. They cared more about what family and friends thought of their treatment (mean response 3.07 vs. 2.52 for foreign-born participants, $P < 0.001$). US-born participants were more likely to agree that “only something really bad would prevent me from taking my medicines” (2.93 vs. 2.39, $P = 0.001$), to believe that they have the TB germ (3.30 vs. 2.93, $P = 0.013$), and to worry about passing TB germs to loved ones (3.26 vs. 2.83, $P = 0.003$). US-born participants agreed that “no matter what, [I] could still get the TB germ” while foreign-born participants were more likely to disagree (2.78 vs. 2.38, $P = 0.009$).

Foreign-born participants were more likely than US-born to disagree with the statement that “going to appointments is more trouble than it is worth” (1.35 vs. 1.60 for US-born participants, $P = 0.027$). Foreign-born participants were more likely to agree that they felt protected from TB disease while the US-born, on average, disagreed (2.64 vs. 2.23, $P < 0.001$).

A factor analysis of these variables did not yield scales with sufficient internal consistency.

Perceived Benefits and Barriers

In general, participants tended to agree with items expressing perceived benefits of treatment for LTBI, with few significant differences between the US-born and foreign-born. As shown in Table 4, foreign-born participants were more likely to feel that they would benefit from treatment for LTBI by staying healthy and not getting sick (mean response 3.42 vs. 3.25 for US-born, $P = 0.038$), and were more likely to disagree that it is too difficult to take TB medicines (mean response 1.76 vs. 1.98 for US-born, $P = 0.025$). There was a trend towards significance for foreign-born participants saying they would benefit by staying healthy to take care of their families (3.46 vs. 3.32, $P = 0.065$).

Findings on other variables suggested attitudes contrary to treatment completion. Foreign-born participants were more likely to agree that they really do not have “the TB germ” (2.30 vs. 2.06, $P = 0.029$) and were more likely to feel that their family and friends who know about their taking LTBI treatment would shun them (2.12 vs. 1.92, $P = 0.084$).

Perceived benefits and perceived barriers items were combined in two scales with high internal consistency reliability. Cronbach's Alpha coefficients for the benefits and barriers

scales were 0.80 and 0.64, respectively. Significant differences between groups were not found for either of these scales.

Discussion

This study provides important information regarding TB/LTBI KAB among US and foreign-born LTBI patients in the US. Compared to other studies, our study gives more attention to the exploration of attitudinal factors. Further, it explicitly explores differences between US- and foreign-born individuals, offering information that may serve to better reach and promote adherence to treatment for LTBI among the foreign-born.

Prior studies of TB KAB in the US have generally found evidence of knowledge gaps concerning TB, particularly related to transmission and differentiation of LTBI from TB disease [6, 8, 15, 16, 20]. This study also found such gaps in both US- and foreign-born participants. While total knowledge scores were not significantly different, US-born participants were more likely to respond correctly to questions in which answers did differ significantly. In contrast to other findings [39–43], both groups were aware that TB is generally a curable disease.

More accurate TB knowledge is hypothesized to be associated with greater willingness to accept treatment, possibly leading to increased rates of treatment completion [44]. The relationship of attitudinal variables to outcomes is less straightforward, and existing literature offers little guidance on the interpretation of attitudinal findings. Several variables measured in this study could be presumed to support positive outcomes. In general, participants viewed TB as a serious disease; felt that medication adherence was important and that they could act to avoid TB disease; trusted their doctors and respected their judgment; were not embarrassed to acknowledge having LTBI; and disagreed with the statement that treatment wasn't worth the trouble. US-born participants were more certain of having LTBI and of being able to adhere to treatment despite difficulties—characteristics that would seem to be associated with better adherence.

Less clarity exists about the hypothetical impact of other attitudinal variables on treatment acceptance and completion. US-born participants were more likely to worry about passing TB germs to others and to care about what family and friends thought of their treatment. Altruism, social support, and social connection are generally viewed as factors associated with positive health behaviors, including medication adherence, but concern for others' reactions may be detrimental if patients feel they must hide their LTBI status and treatment from members of their support networks.

Foreign-born participants were more likely to believe that they were “protected” from TB disease. While these findings cannot address how they felt protected, it is likely that many attribute protection to past BCG vaccination [31]. In spite of studies suggesting that the protective effect of the BCG is quite limited [45, 46], there is widespread belief, even among health care providers, in its life-long efficacy [47]. If foreign-born patients believe this, they may perceive LTBI treatment as unnecessary and thus be less likely to accept and complete treatment. Current CDC/ATS guidelines state that BCG vaccination history should not be

considered when interpreting a positive skin test result [3]. It is possible that new blood-based TB tests may be viewed by foreign-born persons as being more valid in assessing latent infection than the century-old tuberculin skin test [31, 48]. However, it is still incumbent upon the US public health system to provide clear information to these patient groups about the rationale for LTBI treatment in the US context, in light of discordant information they may have received in their home countries. On an individual level, physicians, nurses, and others in TB control programs should elicit patients' understanding of their health status and how they feel about LTBI treatment. Such information will allow them to address misconceptions and to discuss ways of overcoming perceived barriers to treatment completion.

This study has several limitations. KAB related to TB and LTBI differ widely among the heterogeneous cultures represented in foreign-born populations living in the US. In fact, further analyses may prove that KAB variables are less dependent upon country of origin than a host of other variables, including SES, gender, and age. The decision to group together all foreign-born, however, was necessitated by the fact that no single country or region provided a large number of participants. Foreign-born participants originated from 49 different countries. These participants, for the most part, shared the common factor of coming from areas with high TB prevalence and limited treatment resources. In the absence of country-specific analyses, the present study represents an effort to explore KAB in a heterogeneous population.

Another limitation is that the exploration of attitudinal factors was not based on a theoretical model. However, due to the lack of prior work in this area, we felt it vital to explore the broadest range of possible influences, in an effort to identify areas for future focused investigation. Prospective KAB studies of individuals under treatment for LTBI will help clarify the impact of these variables on treatment acceptance and completion.

Additionally, this analysis compares US- and foreign-born individuals participating in a randomized clinical trial and who accepted LTBI treatment in one clinic in one US city. Thus, the findings may not be generalizable to other populations. While the countries of origin for these immigrants may be different than in other parts of the country, we believe that the heterogeneity of this sample adds to its generalizability. Furthermore, unlike previous studies which have sampled high-risk groups such as the homeless, drug users, or recent immigrants, this study drew from a general clinic population.

Conclusion

In response to the alarming resurgence of TB during the 1980s and early 1990s in the United States, TB control efforts were dedicated to identifying and curing cases of active TB disease, and halting on-going transmission. The current challenge to identify and treat LTBI requires new strategies and tools. LTBI treatment cannot be mandated, but much can be done to remove existing barriers to treatment acceptance and adherence among populations most at-risk for development of TB disease.

Future studies should explore the impact of variables presented in this study on treatment outcomes, including acceptance and completion. More attention should be given to furthering the understanding of and to addressing attitudinal factors in patients with regards to the management of TB and LTBI. In tuberculosis control, great emphasis is given to providing materials that are appropriate to the patient's language and reading level. However, various health psychology studies suggest that knowledge does not have a direct effect on specific health behaviors but instead serves to support patient intentions and other variables that may impact desired outcomes [44, 49]. It is possible that other factors may play an important role, including clinic-based factors such as hours of operation, costs, and availability of culturally competent services, along with such individually-based factors as substance abuse, mental illness, and other impediments to treatment adherence.

People who immigrate to the United States increasingly represent the face of TB in the US. The development of effective measures to minimize barriers to LTBI treatment acceptance and completion depends on a better understanding of KAB among foreign-born patients who possess diverse views of LTBI and its treatment. This information can only lead to the design of services which are more acceptable and meet the needs of foreign-born patients.

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Table 1

Baseline characteristics by place of birth

	Total (N = 251)			US (N = 84)			FB (N = 167)			Stat. test	P-value
	X	SD	%	X	SD	%	X	SD	%		
Age (range 18–90 y.o.)	39.1	11.5		44.4	12.4		36.4	10.0		5.514	<0.001
	N	%		N	%		N	%		χ^2	
Male	177	70.5%		64	76.2%		113	67.7%		1.954	0.162
Race										134.460	<0.001
African-American	87	34.7%		68	81.0%		19	11.4%			
Latino	49	19.5%		6	7.1%		43	25.7%			
African	91	36.3%		0	0.0%		91	54.5%			
Other	24	9.6%		10	11.9%		14	8.4%			
Ever homeless *	83	33.2%		47	56.0%		36	21.7%		29.529	<0.001
Homeless in past year *	40	16.0%		26	31.0%		14	8.4%		21.044	<0.001
Married/Common-law	97	38.6%		19	22.6%		78	46.7%		13.676	<0.001
Completed high school	154	61.4%		48	57.1%		106	63.5%		0.945	0.331
Unemployed	148	59.0%		59	70.2%		89	53.3%		6.632	0.010
Prior LTBI treatment	15	6.0%		10	11.9%		5	3.0%		7.744	0.005
Emotional/psychiatric hospitalizations	14	5.6%		8	9.5%		6	3.6%		NA	0.077
Current psychotropic medications	11	4.4%		6	7.1%		5	3.0%		NA	0.188
Currently drink alcohol	81	32.3%		32	38.1%		49	29.3%		1.959	0.162
Currently use drugs	40	15.9%		24	28.6%		16	9.6%		15.045	<0.001

FB foreign-born, LTBI latent tuberculosis infection

* N = 250

TB knowledge by place of birth

Table 2

Correct answers	Total (N = 251)		US (N = 84)		FB (N = 167)		Stat. test	P-value
	N	%	N	%	N	%		
Knowledge of transmission								
<i>One can get TB...</i>								
from crowded conditions	225	89.6%	81	96.4%	144	86.2%	6.263	0.012
by sharing dishes/toothbrushes ⁺	61	24.3%	32	38.1%	29	17.4%	13.055	<0.001
through kissing ⁺	58	23.1%	22	26.2%	36	21.6%	0.675	0.411
from a stranger more than from family ⁺	127	50.6%	43	51.2%	84	50.3%	0.018	0.894
L.TBI is contagious ⁺	144	57.4%	47	56.0%	97	58.1%	0.104	0.747
HIV-positive person more likely to get TB	169	67.3%	59	70.2%	110	65.9%	0.485	0.486
Knowledge of diagnosis								
PPD-positive means you have TB disease ⁺	175	69.7%	66	78.6%	109	65.3%	4.684	0.030
Knowledge of treatment								
Positive PPD test may indicate need for medications	241	96.0%	82	97.6%	159	95.2%	NA	0.503
Most TB can be cured with medications	236	94.0%	78	92.9%	158	94.6%	0.306	0.580
L.TBI treatment can take 1 month ⁺	165	65.7%	57	67.9%	108	64.7%	0.252	0.616
Undocumented person with TB can be deported ⁺	151	60.2%	39	46.4%	112	67.1%	9.931	0.002
Mean knowledge score [*]	x	SD	x	SD	x	SD	T	
	6.98	1.779	7.21	1.743	6.86	1.790	1.483	0.139

* Out of possible total score of 11

⁺ "False" response is correct

HIV human immunodeficiency virus, PPD purified protein derivative, LTBI latent TB infection

Table 3

TB attitudes and beliefs by place of birth

	Total (N = 251)		US (N = 84)		FB (N = 167)		T	P-value
	x	SD	x	SD	x	SD		
Perceived risk								
TB is serious disease	3.76	0.448	3.77	0.421	3.75	0.462	0.422	0.674
Feel protected from getting TB disease	2.50	0.857	2.23	0.879	2.64	0.815	-3.546	<0.001
Worry about passing TB germ to loved ones	2.97	1.157	3.26	1.007	2.83	1.202	3.025	0.003
Believe that you have the TB germ	3.06	1.101	3.30	1.021	2.93	1.121	2.510	0.013
Intentions								
Were likely to miss some meds	1.99	1.020	1.99	0.994	1.99	1.036	-0.043	0.966
Only something really bad would prevent from taking TB meds	2.57	1.263	2.93	1.228	2.39	1.246	3.234	0.001
Care and Treatment								
Taking TB meds is important	3.88	0.452	3.90	0.481	3.86	0.438	0.701	0.484
Clinic appointments are more trouble than worth	1.44	0.775	1.60	0.883	1.35	0.704	2.242	0.027
Taking TB meds is a lot of trouble	1.60	0.897	1.55	0.856	1.62	0.918	-0.606	0.545
BCG vaccine prevents TB disease	2.95	1.086	2.84	1.057	2.99	1.098	-0.891	0.374
Do not trust doctor for best care	1.41	0.798	1.37	0.708	1.42	0.842	-0.515	0.607
Health locus of control								
No matter what, could still get TB germ	2.52	1.184	2.78	1.071	2.38	1.219	2.647	0.009
Getting TB disease can be avoided	3.37	1.004	3.23	1.057	3.44	0.971	-1.567	0.118
You know better than doctor when to stop meds	1.59	1.003	1.46	0.937	1.66	1.031	-1.481	0.140
Stigma								
Embarrassed to have your LTBI status known	2.23	1.183	2.12	1.134	2.28	1.207	-1.026	0.306
Group norms								
Care about what family and friends think of their treatment	2.71	1.204	3.07	1.095	2.52	1.218	3.607	<0.001

BCG = Bacille Calmette-Guerin

Items measured on a 4-point Likert scale

Table 4

Perceived benefits and barriers by place of birth

	Total (N = 251)		US (N = 84)		FB (N = 167)		T	P-value
	X	SD	x	SD	X	SD		
Perceived benefits								
Take TB medicine now, avoid getting sick	3.41	0.622	3.44	0.547	3.40	0.659	0.445	0.657
It is better to prevent TB disease	3.60	0.537	3.64	0.506	3.58	0.552	0.863	0.389
You would stay healthy and take care of your family	3.41	0.577	3.32	0.606	3.46	0.558	0.835	0.065
You will avoid the shame	3.05	0.816	3.10	0.696	3.03	0.870	0.142	0.541
You will not develop TB	3.29	0.681	3.26	0.679	3.30	0.685	-0.450	0.653
You would be taking control of your life	3.38	0.606	3.31	0.623	3.42	0.595	-1.289	0.199
You would set a good example	3.35	0.656	3.29	0.690	3.38	0.638	-1.025	0.306
You would stay healthy and not get sick	3.36	0.615	3.25	0.699	3.42	0.563	-2.083	0.038
Perceived barriers								
Pills hard to swallow	2.15	0.739	2.20	0.712	2.12	0.754	0.835	0.405
Life so busy do not have time	1.73	0.604	1.74	0.623	1.73	0.596	0.093	0.926
Afraid of doctors and hospitals	2.00	0.855	2.04	0.857	1.98	0.856	0.469	0.639
It is too difficult to take TB meds	1.90	0.686	1.98	0.856	1.76	0.551	-2.256	0.025
You do not think you really have "TB germ"	2.22	0.799	2.06	0.764	2.30	0.808	-2.199	0.029
You would suffer from side effects	2.51	0.713	2.58	0.696	2.47	0.721	1.077	0.283
You would be concerned	2.29	0.889	2.23	0.827	2.32	0.920	-0.846	0.399
Your family and friends will shun	2.05	0.859	1.92	0.829	2.12	0.868	-1.738	0.084
Mean benefits scale	3.36	0.412	3.32	0.415	3.38	0.410	-0.988	0.324
Mean barriers scale	2.06	0.400	2.02	0.382	2.08	0.408	-1.175	0.241