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Ethnic Identity Predicts Loss-to-follow-up in a Health Promotion Trial

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Abstract

Background—Higher rates of attrition in health research have been reported for African Americans (AAs). However, little is known about which AAs are more prone to drop out and why. One potential predictor that has not been explored is Ethnic Identity (EI). This study examined the association between EI and loss-to-follow-up among AAs enrolled in a health promotion intervention to increase fruit and vegetable intake.

Methods—Five hundred and sixty AA adults from two integrated health care delivery systems in Atlanta and Detroit were enrolled into a randomized intervention trial. At baseline, all participants were classified into six EI core groups: Afrocentric, Black American, Bicultural, Multicultural, Assimilated, and High Cultural Mistrust. We examined loss-to-follow-up rates by these EI type.

Results—Overall, 92 participants (16%) were lost to follow up. Loss-to-follow-up rates were higher among those classified as Afrocentric (24%) than those without an Afrocentric identity

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(13%). After adjustment for covariates, Afrocentric participants were 1.9 times (CI: 1.1 – 3.6) more likely to be lost to follow up than participants without this identity type.

Conclusions—Assessing EI of AAs in research studies may help identify groups at risk for dropout and/or non-response.

Keywords

Ethnic identity; African American; tailored health communication

Introduction

Difficulty recruiting and retaining African Americans (AAs) in clinical trials has long been cited as a challenge for researchers [1–5]. Loss-to-follow-up incorporates several terms including nonresponse, attrition, early withdrawal, nonattendance and dropout. Although each term has slightly different causes and implications, for the purposes of this paper, the term “loss-to-follow-up” will be used to include to any baseline study participant for whom posttest data were not obtained.

Loss-to-follow-up in health research can limit both internal (when there is differential attrition between study groups) and external (when there is selective attrition) validity of research findings. Surprisingly little research has been conducted to determine which AAs are more likely to be lost to follow up [6,7]. Across racial and ethnic groups, predictors of loss-to-follow-up include gender, age, disease burden, employment status and cognitive function [2,8–11]. Reasons for loss-to-follow-up that may differentially impact minority groups include cultural mistrust and disenfranchisement, limited representation of minority investigators and research staff, transportation difficulties, and limited access to care [3,5,12,13]. Enhanced knowledge of the predictors of loss-to-follow-up among AAs may inform retention strategies in future studies, thereby improving the generalizability and validity of study findings.

One potential predictor of loss-to-follow-up among AAs that has not been adequately explored to date is Ethnic Identity (EI). EI is the degree to which an individual identifies socially, politically, emotionally, behaviorally or spiritually with his or her racial/ethnic group [14]. It is highly variable among AAs. For example, race does not play a central role in overall identity for AAs who identify as Americans first. Conversely, for others, race/ethnicity is an essential component of their self-image. Some AAs feel a strong connection to Africa and African culture whereas others may identify both as African Americans and Americans. By better understanding the role of EI in loss-to-follow-up, investigators will be better equipped to address study attrition by tailoring on various aspects of AA identity. EI tailoring may be a promising tool to maximize retention in future studies.

The purpose of the analyses reported was to examine whether EI was associated with loss-to-follow-up rates among AAs participating in randomized trial testing the efficacy of a culturally-tailored health promotion intervention to increase fruit and vegetable intake.

METHODS

Measures

Ethnic Identity—EI was measured using the Black Identity Classification Scale (BICS) developed by the study team [15]. The BICS was designed as a telephone-administered tool to assess respondents' identification and classify them into six core EI types. The scale included new items, as well as items adapted from prior measures including the Cross Racial

Identity Scale [16–18], the Multidimensional Inventory of Black Identity [19–21], the Survey of Black Life [21,22] and the Cultural Mistrust Inventory [23]. The six core types were Afrocentric, Black American, Bicultural, Multicultural, Assimilated, and High Cultural Mistrust. Individuals could be classified as having more than one EI type. For example, an individual could be typed as both Afrocentric and Bicultural. In this case they would have received tailored messages for both types. The only type that could not receive a “dual” classification was assimilated as that was considered exclusive of the other types. Additional information about the scale can be found elsewhere [15] and a copy of the instrument and scoring algorithm are available from the third author. A description of the core EI types and sample items follows:

Afrocentric: The Afrocentric type feels a strong connection to Africa. Such individuals are likely to have knowledge of African culture, traditions and spiritual beliefs, and are more likely to celebrate African-influenced holidays such as Kwanzaa. Sample items include; 1) I feel a strong emotional connection to Africa, and 2) It is important for African Americans to get back to their African roots.

Assimilated: Those typed as Assimilated are more likely to identify as an “American” or with social roles such as parent, Marine, Christian or engineer rather than as a Black or African American. The Assimilated person has low racial salience; race plays a small role in their overall identity. Low racial salience was assessed by querying, “on a scale of 0 to 10, with 10 being very important, how important is being Black to your overall identity?” In addition we considered participants' responses to items such as 1) Both in my private and public thoughts, race is an important part of who I am, and 2) Many things that make me happy are connected to the fact that I am Black. The “assimilated” response was to disagree with such items.

Black American: Those typed as Black American are aware and proud of their racial heritage. They primarily associate with other Black persons and tend to utilize Black media. They also tend to be interested in Black American history and culture. Sample items include; 1) When I watch television, I usually watch Black television shows, and 2) It is important for Black people to educate their children about Black art, music, and literature.

Bicultural: Those typed as Bicultural are able to navigate in both the Black and White worlds. The Bicultural person is able to easily switch between the culture and views of Black and majority cultures. They may view the world in a Black/White duality. Sample items include; 1) I feel at ease with Whites and Blacks, and 2) I feel comfortable interacting with both Blacks and Whites.

Multicultural: The Multicultural person has high racial salience but also feels a connection to other racial/ethnic groups and cultures. They possess an international worldview and may support human right issues, women's rights and similar struggles/causes around the world. Sample items include; 1) I feel strongly about international human rights issues in places such as the Middle East and Tibet, and 2) I care deeply about the needs of other groups such as Native Americans, Whites, Latinos, and Asian Americans.

Cultural Mistrust: A person high on cultural mistrust is dissatisfied with race relations in the U.S. and perceives racism both on the individual and societal level. Sample items include; 1) When I think about race relations in America, I get angry, and 2) Many White politicians deliberately pass laws designed to block the progress of Blacks.

Internal consistency coefficients for the core subscales using the baseline sample (n = 560) were 0.74 for the Black American subscale, 0.80 for the Afrocentric subscale, 0.72 for the

Bicultural subscale, 0.67 for the Multicultural subscale, 0.80 for the Racial Salience subscale (used to determine Assimilated EI), and 0.37 for the Cultural Mistrust scale. Additional details about the scoring algorithm and scale properties are available elsewhere [15]. In general, an EI type was coded as “present” if the respondent scored at or above the 75th percentile for the study sample on that subscale.

Sample Recruitment

AA participants were recruited from two health care delivery systems in Detroit and Atlanta. Approximately 2020 invitations were mailed to health plan members ages 21 – 70. Each letter contained a \$2 pre-incentive and listed a toll-free number for recipients to proactively opt out of the study. Individuals who did not opt out were contacted by telephone approximately a week after the invitations were mailed. Telephone calls were conducted between September 2006 and July 2007 by AA interviewers to confirm eligibility, obtain verbal consent, and to administer the baseline survey. Up to 14 attempts to reach participants were made during the 8-week period following the invitation mailing. Participants who completed the baseline telephone survey subsequently received a \$5 post-incentive through the mail. The study was approved by Institutional Review Boards from the University of Michigan and the two participating integrated health care delivery sites.

To qualify for the study, participants needed to self-identify as being Black or AA, report living at least half of their life in the United States, be between the ages of 21 and 70, not be currently hospitalized or living in skilled care facility, have no mental or physical condition that would hinder participation in the study, and consume no more than ten servings of fruit and vegetables daily. Anyone who self-identified as being bi-racial or bi-ethnic was excluded. In total, 625 health plan members completed the baseline survey. This reflects 31% of those who were sent recruitment letters. Of these 625, a total of 560 participants (90%) answered enough survey questions for the computerized tailoring system to produce a personalized newsletter. Approximately three months after the baseline survey, a follow up survey was conducted by telephone. Those who completed this survey received a \$15 gift certificate to either a local grocery or retail store depending on their stated preference. If participants could not be contacted by telephone, a letter was mailed to the address on file requesting that they contact the study coordinator with updated contact information. Follow up surveys were completed with 468 enrolled newsletter recipients, yielding a retention rate of 84%. The 92 participants who did not complete a follow up survey for any reason were considered lost to follow up. In most cases, we were not able to fully distinguish between those who actively withdrew from the study versus those who were unreachable.

Intervention

Approximately one-third of the sample was randomly assigned to the control group and the remaining two-thirds of the sample were assigned to an experimental group. Both groups received an intervention consisting of three newsletters delivered approximately once per month over three months. All newsletters were focused on increasing fruit and vegetable intake. In both groups, newsletters were individually tailored on social cognitive variables, such as benefits, barriers, preferences, self-efficacy, social roles, and demographics. In the experimental group, messages and graphics were also tailored based on the participant's individual EI. For example, an Afrocentric tailored message read, “Have you ever wondered why Africans often have lower rates of obesity, diabetes, high blood pressure, and cancer than African Americans?” The control group newsletter targeted a general Black American audience with a small degree of Afrocentricity. This approach was chosen because the Afrocentric/Black American EI type was the most common type in our pilot study. Full details about the intervention and its development can be found elsewhere [24].

Draft newsletter messages and graphic designs were pretested in focus groups with AA members of the two participating integrated health care delivery systems. After the pilot, tailored messages were further refined by the study team and experts in Black Identity Theory. The reading level for the newsletters was approximately sixth grade.

Analysis

Chi square and t-tests were used to compare demographic differences between those retained in the study cohort and those lost-to-follow-up. We then compared loss-to-follow-up rates across each EI category using chi-square analysis. Next, multivariate logistic regression was used to examine the odds of being lost-to-follow-up across all EI types, adjusting for age, gender, marital status, and education. Because Afrocentric EI type was found to be significantly associated with drop out in the multivariate model, we also explored potential interactions of Afrocentric type with age, gender, marital status, education, and study intervention arm, study site (Atlanta vs. Detroit) and loss-to-follow-up. All analyses were conducted using SPSS for Windows, version 18.0, 2009. Chicago: SPSS Inc.

Results

Overall, 92 of the 560 participants (16%) were lost-to-follow-up (Table I). Those retained in the cohort (e.g. providing follow up data) were predominantly female (73%), reported higher than a high school education (some college (33.6%)), college degree or higher (35%), were employed full-time (60%), single (61%) and just under half were earning \$40,000 per year or more (48.8%). Their mean age was 49 years, with a range from 21 to 70 years. There were no statistical differences between those lost-to-follow-up and cohort members in age, baseline fruit and vegetable intake, employment status, marital status or income. Those lost-to-follow-up were statistically more likely ($p < .05$) to be male and to report less educational attainment than those retained in the cohort.

As shown in Table II, lost-to-follow-up rates differed by baseline EI type. Among those with an Afrocentric type, 24% were lost-to-follow-up compared to 13% from other EI groups ($p \leq 0.01$). Among those who were lost-to-follow-up, 58% of Afrocentrics were male compared to 27% without an Afrocentric identity ($p < .05$, $\chi^2 8.8$) and 48% of Afrocentrics were unemployed, compared to 25% of those from all other EI groups ($p < .05$, $\chi^2 5.05$). Among those who were lost-to-follow-up, Afrocentrics had significantly higher mean fruit and vegetable intake at baseline, 4.0 servings per day, compared to those without an Afrocentric identity, 3.1 servings per day ($F=5.4$, $p=0.02$). Finally, Afrocentric lost-to-follow-ups were somewhat older, 51 years, compared to 46 years for those lost-to-follow-up without an Afrocentric identity ($F=6.3$, $p=0.14$). Each of these potential confounds were included in the multivariate model.

The multivariate analysis indicated that participants with an Afrocentric identity had higher odds of being lost-to-follow-up, 1.9 (95% CI: 1.1, 3.6, $p=0.04$) than participants without an Afrocentric identity after controlling for age, gender, marital status, and education (Table III). Including mean baseline fruit and vegetable intake also did not alter these findings. Black Americans were marginally less likely to drop out but this difference was not statistically significant (OR 0.48, CI 0.22 – 1.06). Females were also significantly less likely to be lost-to-follow-up than men.

We examined whether the association of loss-to-follow-up rates and Afrocentric type was moderated by intervention group membership (i.e., control vs. experimental) or study site (i.e., Detroit vs. Atlanta) but found no significant interactions. Similarly, we found no

interaction of Afrocentric type and demographics (i.e., marital status, employment, education, and age, and gender).

Discussion

Recruitment and retention of AAs in research studies have generally considered AAs as a single homogenous group. We explored retention of AAs based on individual level EI and found that loss-to-follow-up was associated with EI. One EI type in particular, Afrocentric, was significantly associated with increased loss-to-follow-up at three months post-enrollment. Cultural Mistrust was unrelated to loss-to-follow-up. This is somewhat surprising given evidence that AAs often perceive discrimination within the health care system, which has been attributed to disproportionately lower participation in health research [25,26]. However, some recent data suggests that at least one aspect of cultural mistrust, awareness of the Tuskegee experiment may not impact clinical trial enrollment as much previously thought [27,28]. Alternatively, the low internal consistency for our cultural mistrust scale may have limited our ability to detect any association with drop out.

Why Afrocentric participants were less likely to be retained merits explanation. Afrocentrics who were lost-to-follow-up were more likely to be male, older, unemployed, and to have higher baseline fruit and vegetable intake compared with those lost-to-follow-up from other EI groups. Thus, given these differences the selective attrition of Afrocentrics may limit the generalizability of finding for any study of African Americans. The higher loss rate remained significant even after adjusting for these covariates, suggesting that Afrocentricity contributed independently to attrition. We also examined whether Afrocentrics who were lost-to-follow-up had higher cultural mistrust than Afrocentrics who remained in the study, but found no group differences in mistrust. Thus, higher levels of cultural mistrust at baseline, at least as measured by our scale, did not appear to drive loss-to-follow-up among Afrocentrics.

Another reason for the higher attrition among Afrocentrics may have been that our intervention messages were not as effectively tailored for these participants compared to those with other EI types. For example, Afrocentric individuals may have a unique sense of community, culture, and history that was not meaningfully addressed in our intervention messages. However, as loss-to-follow-up among Afrocentrics did not differ by intervention group, it is unlikely that retention was due to any problems unique to either intervention. It is possible that materials in both the control and experimental group were not well matched for Afrocentrics and contributed to their higher attrition.

Strengths of this study include a two-site recruitment effort involving large integrated health care delivery systems and an overall retention rate of 84%. Minority recruitment into research studies is a priority area for many organizations including the National Institutes of Health and the Intercultural Cancer Council. This study demonstrates that it is possible to recruit large numbers of AAs into a health promotion trial. Several limitations should be noted. Classification into EI groups was not always straightforward. We found that individuals could score high on multiple aspects of their EI and tailoring for multiple EI types at once was challenging. Some EI types were categorized more precisely than other types, in part due to the psychometric precision of selected subscales. For example, the Cultural Mistrust scale had low reliability (0.34) and comprised only three items. This may have led to misclassification and limited our ability to match messages to the EI profile. In addition, our sample had health insurance and resided in two defined geographic regions, therefore results from this study are not generalizable to all AAs, particularly those who are uninsured. In addition, we were not fully able to determine which individuals intentionally withdrew from the study without notification versus those who were lost-to-follow-up due to

a change of telephone number or mailing address. Lastly, the actual number of participants that were lost-to-follow-up was small (n=92), limiting statistical power and generalizability.

Findings from this analysis have implications for future studies related to health disparities and health risk of AAs [29,30]. First, it may be important to assess ethnic identity in studies of African Americans and other ethnic groups, to determine the generalizability of study findings, particularly cohort studies where drop out can be insidious. This study also demonstrates that unique strategies to engage and retain African Americans based on their individual EI may be warranted.

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Table I

Characteristics of Ethnic Identity Retention Cohort and Lost-to-follow-up Rates (N=560)

	Cohort (n=468)	Lost-to-follow-up (n=92)
Age (mean (range))	48.7 (21, 70)	47.9 (21, 69)
Gender (% Female)*	72.9	59.8
Education (%)*		
<HS	1.7	6.5
HS	29.7	34.8
Some College	33.6	22.8
College or higher	35	35.9
Employment Status (%)		
Full Time	59.8	64.1
Part Time	6	1.1
Not Working	34.2	34.8
Marital Status (%)		
Married	38.7	45.6
Single	61.3	54.4
Income (%)		
<\$20	9.3	5.2
\$20-40	31.3	35.1
\$40-80	48.8	54.6
\$80-100	10.7	5.2
>100	0	0
Fruit and Vegetable Intake (mean, sd)	3.6(1.89)	3.5(1.82)

* Statistically significant $p < .05$

Table II

Lost-to-follow-up by Ethnic Identity Type: Univariate Results (n=560)

Type	% Lost with EI type	% Lost Without that EI type	p [^] value
Black American	15%	19%	0.15
Afrocentric	24%	13%	≤0.01
Bicultural	17%	16%	0.84
Multicultural	19%	16%	0.39
Assimilated	10%	17%	0.19
Cultural Mistrust	16%	17%	0.91

[^] Chi square

Table III: Comparison of Odds Ratios for Loss-to-follow-up Rates by EI Type: Multivariate Results (n=560).

EI Type	OR	95% CI
Afrocentric	1.94	1.05 – 3.63*
Black American	0.48	0.22 – 1.06
Bicultural	1.06	0.52 – 2.16
Multicultural	0.73	0.34 – 1.56
Assimilated	0.47	0.13 – 1.76
Cultural Mistrust	1.03	0.49 – 2.15
Age	0.99	0.97 – 1.01
Gender (0 male: 1 female)	0.60	0.36 – 0.99*
Marital Status (0 married: 1 not)	1.15	0.72 – 1.19
Education	0.83	0.52 – 1.32

* Statistically significant $p = < .05$