HIV/AIDS Gender-Specific Risk Assessment Differentials of African American Women: A Comparative Study of Two Unequal US Inner-City Communities

Patrick B. Williams*, Ifreke B. Williams and Quintin L. Williams

Department of Health Studies, College of Health Sciences, Chicago State University, 9501 South King Drive /DH 120D, Chicago, IL 60628-1598, USA

Abstract: *Objective*: We appraised the differences and similarities in awareness, attitude, beliefs, misconceptions and the various high-risk behaviors that influence the rate of infectiousness of HIV/AIDS among African American (AA) women in two unequal US inner-city communities of Baltimore, Maryland and Dover, Delaware.

Methods: A cross-sectional convenience-sample survey of 449 African-American women was conducted in Baltimore, MD and Dover, DE between 2009 and 2011. With the main outcome dependent variables of knowledge, attitude, feelings, behavior/practices and potentials for behavior change among the subjects, we administered a 50-item ethnically-sensitive &, gender-specific instrument (AKFBQ) to subjects *via* person-to-person interview method. The instrument was initially developed by Dancy (1992) and modified by authors to meet the current study criteria.

Results: Of the 449 respondents, (Baltimore=53%; Dover=47%), none in the two communities indicated homosexual or bisexual tendency. Number of respondent's sex partners in the previous 12 months were: 1-2 (53%); 3-4 (25.7%); 5 and higher (20.5%). Statistically significant differences were observed between the two populations on HIV/AIDS knowledge ($p< 0.001$), HIV/STIs testing history ($p < 0.001$), unprotected intercourse with drug users ($p< 0.001$) , unprotected casual sex ($p < 0.001$), communication with potential sex partners regarding sexual limits prior to intercourse ($p = 0.348$), and respondents' attitudes toward stigmatization of HIV/AIDS patients ($p = 0.025$).

Conclusions: Although the level of knowledge of HIV/AIDS was higher among subjects in smaller inner-city Dover, than those of greater Baltimore metropolis, the overall respondents' beliefs, attitude/feelings, behavior and potentials for behavioral change did not differ significantly among the women in the two un-identical urban communities. Studies with wider population samples have been advocated.

Keywords: HIV/AIDS, US ethnic minorities, African American women, health disparities, high-risk behavioral factors.

INTRODUCTION

A number of studies have revealed significant health status disparities among U.S. populations by race/ethnicity, socioeconomic, age and gender [1]. These inequalities, which mostly affect the US poor and ethnic minority populations, accordingly, are multidimensional, and include such factors as poverty, life on the street, inaccessibility to health care, differential use of health services, poor health knowledge and inadequate health education [2-4]. Eliminating these disparities, which is one of the cornerstones of the US *Healthy People 2010/2020 national health objectives* [5, 6], requires new approaches, knowledge and attitudes about the determinants of diseases and effective interventions for their prevention and control. Recent statistics have revealed sustained higher rates of HIV/AIDS and other sexually transmitted infections (STIs) incidence and prevalence among African-American women, and the lack of specific baseline data on knowledge, misconceptions, attitude/feelings, beliefs and behavior of the women towards HIV infections [7-9]. Such baseline data are important for planning and implementing evidence-based competent HIV/AIDS health promotion and disease intervention programs for African-Americans, the inner-city poor and other US minority communities.

Studies have shown that although African-American women constitute about 13.9% of the US female population, they account for over 68% of all HIV cases among women in the nation [9-12]. The present study which presents a cross-sectional survey approach utilized an ethnogender-specific instrument (AKFBQ) to assess the level of understanding, feeling/attitude, myths and misconceptions, and the various high-risk behavioral factors that influence the mortality, spread and rate of infectiousness of HIV/AIDS among African American women in the two inner-city American communities of Baltimore, Maryland and Dover, Delaware. The second objective of the study was to determine the impact of AIDS education and promotion intervention practices being conducted by community-based organizations on the African American women in

*Address correspondence to this author at the Department of Health Studies, College of Health Sciences, Chicago State University, 9501 South King Drive/BHS 423, Chicago, IL 60628-1598, USA; Tel: (773) 821-2594; Fax: (773) 995-3284; E-mail: pbassey.williams@csu.edu

E-ISSN: 2310-998X/13

the two unequal inner-city American communities. The cognitive, attitudinal and behavioral differences observed for these two potential target groups may underscore the importance of studying the characteristics and behavior of adolescents and young adult females from other ethnic groups and economic dimensions regarding HIVAIDS rates of infectiousness and mortality across US populations.

Need for the Study

African-American women have historically been impacted by a number of social and status factors including income and occupation [10, 11]. In the public health sector, this trend of low priority tends to continue despite the myriad of preventable health problems, including HIV/AIDS, facing the women and their children. Presently, AIDS is the leading cause of death among African-American women, aged 25 to 44 years [11, 12]. In 2009, for example, African-Americans women accounted for 64% of all HIV+ females and over 50% of women with fully diagnosed AIDS in the nation. Also in the same period, the African American community with only 13.5% of the US population accounted for 20,187 (50%) of the estimated 40,608 new HIV diagnoses in the 33 states with long-term, confidential name-based HIV reporting [12, 13]. The rate of AIDS diagnoses for African American adults and adolescents was 10 times the rate for whites and nearly 3 times the rate for Hispanics, while the rate of AIDS diagnoses nationally for African American women remained at 23 times the rate for White females [13, 14].

Furthermore, although the rate of new HIV infections have stabilized among most racial and ethnic groups in the US, in recent years, persons of color have continued to experience more HIV related illnesses, shorter survival time, and higher mortality rates irrespective of age, gender and socioeconomic status [10, 11]. African American women are by far more affected by HIV infections, with incidence rates being nearly 15 and 4 times higher than those for White and Hispanic women, respectively [12-14]. Therefore, it is against these backgrounds that we conducted this cross-sectional survey utilizing an ethnogender-specific instrument (AKFBQ) to assess the level of understanding, feeling/attitude, myths and misconceptions, and the various high-risk behavioral factors that influence the spread and rate of HIV/AIDS infectivity among African American women in the two inner-city American communities of Baltimore, Maryland and Dover, Delaware. The cognitive, attitudinal and behavioral differences observed for these two target groups may underscore the importance of studying the characteristics and behavior of adolescent, young adult, and adult females from other ethnic groups and economic dimensions regarding HIV infection rates and AIDS mortality across US populations.

METHODOLOGY

Design

This was part of a larger cross-sectional 2003/2004 tri-state ethnogender HIV/AIDS assessment of African American women in Southern and Mid-Atlantic regions of the United States [9]. The two locations, Baltimore, Maryland, a major metropolis (population: 697,000; 59% African Americans) and Dover, Delaware, a smaller urban center (population: 139,000; 42% African Americans), respectively, formed the two inner-city communities for this study, conducted between 2009 and 2011. Age distribution, ethnic characteristics, educational levels, earlier research experiences, and the characteristics of HIV/AIDS distribution among the subjects were variables of interest used in selecting the study sites. Manpower availability and collaborative compatibility were also considered in the sites selection.

These two cities were selected because current data from these sites (Baltimore, Maryland and Dover, Delaware) also revealed high disparities in HIV infections among African-American women compared to their Caucasian counterparts. Percent ratios of HIV incidence rates between African-American and White females in these study areas currently stand at 8:1 and 5:1 respectively [14-16]. The Baltimore City Health Department (BCHD) once maintained that in every 8 hours, someone in Baltimore is infected with HIV [17, 18].

In the State of Delaware, the HIV/AIDS case mortality rate for African-American women is much higher than the national average and is 21 times the rate for Caucasian women in the state [14, 16]. Further, although the city of Baltimore, accounts for less than 15% of Maryland's total population, it is home to over 50% of HIV-infected persons in the State [15, 17]. Recent epidemiologic data indicate that African Americans represent over 89% of all HIV-related infections in Baltimore with more than 1 in 100 adolescent males being HIV positive. Among the newly HIV diagnosed females, 68.5% reported heterosexual exposure while 29.7% of the infections were contracted

through injection drug use [17, 18]. Thus the epidemic nature of the HIV infections among African-Americans in these two unequal urban communities underscores the African American females' physical, emotional and socio-cultural vulnerability to HIV/AIDS.

Selection Criteria and Data Collection

We recruited our sample from sorority organizations, schools and colleges, clubhouses, shopping malls/beauty solons, neighborhood health centers and women clinics. Women found at these locations were contacted by graduate research assistants who introduced themselves and the survey, and asked if the individuals might be interested to participate in the study. Those interested were then screened to determine their eligibility to participate. Participants were considered eligible for the study if they were: non-white or non-Hispanic black females between the ages 18 and 60 years, (b) were residents of predominantly African American inner-city neighborhoods of Baltimore, Maryland and Dover, Delaware and (c) have been sexually active in the previous 12 months.

A 50-item ethnically-sensitive and gender-specific HIV/AIDS survey instrument originally developed by Dancy [19] for assessment of individual and community HIV/AIDS knowledge, attitude/feelings and high-risk behavior in urban communities, was used for the study. The instrument was slightly modified to reflect current accepted knowledge, attitude and behavior about HIV/AIDS. Items on knowledge were scaled on a "True-False-Don't Know" format. The option of "Don't Know" was included to reduce the probability of guessing, as guessing may cause some variation in performance from item to item, which tends to lower the test reliability [20]. Those for sexual behavior/practices assessment had "Yes," "No" and "Not-sure" options. Items subscale assessing attitude/feelings; and attitude toward condom use, utilized a 5-point Likert scale ranging from 1 (Strongly Disagree/Very Unlikely) to 5 (Strongly Agree/Most Likely) with the midpoints representing ambivalent responses. Four HIV/AIDS experts reviewed the modified questionnaire items for appropriateness and scientific accuracy of the contents. The final instrument which comprised three major areas: AIDS knowledge (24 items), attitude/ feelings toward HIV/AIDS/condoms use (14 items), and sexual behavior/practices (12 items), was pilot-tested on 30 African American women for reliability. The internal consistency reliability coefficients for knowledge, attitude, and behavior of the instrument, respectively, yielded Cronbach's alphas of 0.74, 0.81 and 0.76, and were high enough to meet our study criteria.

To assess the respondent's attitude and feelings about HIV/AIDS and related high-risk behavior, we also considered mediating variables from current theories of health behavior, including: (1) the predisposing factors to engage in sexual relationship, (b) personal and partners' attitudes towards safer-sex, (3) perceived susceptibility to HIV/AIDS and (4) personal assertiveness and communication skills with sex partners [21]. Other assessment components included participants' demographic information on age, marital status, education and income dimensions. The final instrument was administered to the subjects by questionnaire/personal interview method by graduate student assistants who had been duly trained in oral interview techniques. It took about 30-35 minutes to administer the instrument to the participants.

Study Sample

Four hundred sixty-eight (n=468) African American females from the two unequal urban communities of Maryland and Delaware voluntarily participated in the study. Nineteen participants were later excluded from the study because of eligibility issues and incomplete data, leaving a sample of 449 for final analysis. The subjects whose ages ranged between 18 and 60 years were from varied socioeconomic and occupational backgrounds, but excluded members of medical and public health professions. They were heterogeneous with only two common defining characteristics – being female, and African American. This was to allow for subgroup analysis and understanding, should differences exist between the groups. Distribution of subjects by study sites shows Baltimore (Metro-urban site) with 236 (52.6%) of the females, while Dover (Smaller urban) had 213 (47.4 %) of the participants. All participants signed informed consent forms as required by the Institutional Review Board (IRB) for protection of human subjects. Adolescent participants from high schools and their parents were, respectively, required to sign separate consent forms to participate in the research. Participants were also informed of the minimal risk associated with the study, assured of confidentiality and told that they could withdraw from the study at any time.

Data Analysis

Data were entered into a spreadsheet and later exported to SPSS version 17 for analysis [22].

Descriptive statistics (frequencies, means, and standard deviations) were used to describe the variables of interest. To identify specific gaps in knowledge, an analysis was undertaken on each question to identify those that were consistently answered correctly and/or wrongly. Data were analyzed by contingency tables, except for t-tests as appropriate for continuous data (for example, age). Cross tabulations were run on demographic variables and respective sexual responses, HIV/AIDS attitudinal statements on high-risk sexual behavior and, attitude towards condom use. Chi Square (X^2) tests were used for bivariate relationships between these factors as well as for differences in proportions and for other categorical variables. A one-way Analysis of Variance (ANOVA) was used to test the mean differences in respondents' awareness or knowledge scores between and within the study sites. The Fisher's exact test was used when the minimum expected frequencies were less than five in a *2 x 2* table. All statistical tests were two-tailed and α = 0.05 or less was considered significant.

RESULTS

Sociodemographic Analysis

Four hundred six-eight (n = 468) African American females from the two un-identical urban communities (size & population) of Maryland and Delaware voluntarily participated in the study. Four percent (4.0%) of the participants were later excluded from the study due to incomplete data and underage exclusion criteria, leaving a sample of 449 (a 95% response rate) for the final analysis. Distribution of subjects by study sites shows Baltimore with 236 (52.6%) of the females, while Dover had 213 (47.4 %) of the women. Table **1** summarizes the socio-demographic characteristics of the study group**.** Of the 449 respondents, none indicated homosexual or bisexual tendencies. Most respondents (81.7%) were aged 18 to 36 years. Approximately three-quarters of the respondents (74.8%) were single and never married, 15.4% were married, 3.8% were separated, and 6% were either divorced or widowed.

Furthermore, when the study sites were taken singly, sample median age distributions (in years) differed slightly among the subjects, with 30.0 and 27.6 years, respectively, for Baltimore and Dover urban sites. The median age for the entire population was 28.8 years. There were no differences among the socioeconomic groups in income distribution, as majority of the subjects in the two unequal urban sites were either at or below poverty level. Unemployment was higher (53.0%) among the Baltimore inner-city respondents compared to 45.1% for Dover subjects. Further, Dover respondents exhibited a higher literacy rate than Baltimore subjects (as determined by level of education) with over 54% & 14 % of the subjects attending or have completed four or more years of college, respectively, versus 32% & 13% for Baltimore. Non-high school graduates also varied significantly in favor of Dover with 14%, vs. Baltimore, 26%, respectively, not completing high school.

Knowledge/Awareness

Table **2** illustrates subjects' knowledge of HIV/AIDS and related behavioral high-risk factors by age, level of education, marital status, income and employment dimensions. We found very low level of knowledge about HIV/AIDS among the subjects in the two unequal urban communities. Overall, older respondents aged 40 to 44, 45-49 and 50-55+ years scored more in the awareness test and were higher than those of the rest of the population. The differences in these scores were statistically significant (P < 0.001). Further, Dover (smaller urban) residents were more likely to score higher in the awareness test than Baltimore residents (35.4 vs. 28.1, p < 0.001). Specifically, Dover residents aged 30 years and above consistently had higher knowledge scores and were more knowledgeable about HIV/AIDS than their counterparts in Baltimore metropolis. These differences were statistically significant (p < 0.001) except for those aged 35-39 (p = 0.320). Hence age was associated with the respondents' HIV/AIDS awareness in the two un-identical urban communities.

Accordingly, level of education, and employment status were significantly correlated with the subjects' level of knowledge in both the larger and smaller urban communities of Baltimore, MD and Dover DE. Subjects attending college or had completed four or more years of college in the two urban communities scored more in the knowledge section than those who had completed or did not complete high school. Level of education was significantly correlated with the subjects' level of knowledge in the two urban communities (p < 0.05). Again, across all educational categories, residents of Dover were more likely than their Baltimore counterparts to have higher knowledge about HIV/AIDS and risk factors. Except for those who did not complete high school, those differences were also significant (p < 0.001). Statistically significant differences were

Table 1: Socio-Demographic Characteristics of African-American Women in Inner-City Communities of Baltimore, MD & Dover, DE

Category	*Urban Communities of Baltimore, MD and Dover, DE (N = 449)*			
Age Group in Years	**Baltimore (N=236)**		**Dover (N = 213)**	
	Number of Respondents	**% Population**	**Number of Respondents**	**% Population**
15 - 19	74	31.4	67	31.5
20 - 24	53	22.4	81	38.0
25 - 29	18	7.6	17	8.0
30 - 34	19	8.1	7	3.3
35 - 39	19	8.1	12	5.6
40 - 44	26	11.0	9	4.2
45 - 49	22	9.3	7	3.3
50 - 55+	5	2.1	13	6.1
Total	**236**	**100.0**	**213**	**100.0**
Marital Status				
Single	187	79.2	149	70.0
Married	24	10.2	45	21.1
Separated	14	5.9	3	1.4
Divorced	10	4.2	15	7.0
Widowed	1	0.5	1	.5
Total	**236**	**100.0**	**213**	**100.0**
Educational Level				
Did not Complete H/S	61	25.8	30	14.1
Completed HS	66	27.9	35	16.4
Attended Coll.	76	32.4	117	54.9
Completed 4 or more Years of College	33	13.9	31	14.6
Total	**236**	**100.0**	**213**	**100.0**
Income Level				
<10,000	138	58.5	120	56.3
11000- 20,000	54	22.8	52	24.5
21000- 30,000	14	5.9	19	8.9
31000- 40,000	11	4.7	8	3.7
41000- 50,000	10	4.2	4	1.9
51000-60,000	2	0.8	6	2.8
61,000 **+**	7	3.1	4	1.9
Total	**236**	**100.0**	**213**	**100.0**
Employment Status				
Employed	111	47.0	117	54.9
Un-employed	125	53.0	96	45.1
Total	**236**	**100.0**	**213**	**100.0**

Table 2: Participants' Knowledge of HIV/AIDS and Related Behavioral-Risk Factors by Age, Marital Status, Educational Level, Income Level and Employment Status

Category	Baltimore, MD (N = 236 Mean score 28.3 (sd ± 3.6)		Dover, DE (N = 213) Mean score 35.5 (sd ± 5.4)		p-value
Age Group Age Group	**Size (n)**	**Mean % Score (SD)**	**Size (n)**	**Mean % Score (SD)**	
15 - 19	74	31.4 (4.5)	67	30.9 (3.5)	0.543
20 - 24	53	32.5 (5.2)	81	31.5 (4.0)	0.110
25 - 29	18	32.3 (4.0)	17	32.9 (4.7)	0.200
30 - 34	19	33.2 (5.6)	7	38.4 (5.3)	< 0.001
35 - 39	19	30.6 (3.2)	12	31.7 (4.1)	0. 320
40 - 44	26	35.6 (5.4)	9	43.4 (5.6)	< 0.001
45 - 49	22	37.3 (5.8)	7	44.9 (6.2)	< 0.001
50 - 55+	5	35.2 (4.6)	13	40.7 (5.4)	< 0. 001
Total	**236**	**29.4 (4.2)**	**213**	**36.8 (4.6)**	
Marital Status					
Single	187	32.4 (2.8)	149	34.4 (4.3)	0. 325
Married	24	31.6 (3.1)	45	33.2 (3.3)	0.206
Separated	14	27.5 (5.2)	3	30.3 (3.1)	0.547
Divorced	10	30.3 (4.2)	15	32.7 (3.5)	0.368
Widowed	1	28.4 (3.3)	1	30.0 (3.1)	0.927
Total	**236**	**24.5 (3.7)**	**213**	**32.1 (4.2)**	
Educational Level					
Did not Complete H/S	61	25.3 (3.6)	30	28.0 (3.3)	0.335
Completed HS	66	30.4 (4.3)	35	37.5 (5.3)	0.001
Attended Coll.	76	33.4 (5.7)	117	44.7 (5.8)	< 0.001
Completed 4 or more Years of College	33	36.6 (5.8)	31	43.9 (5.1)	< 0.001
Total	**236**	**31.4 (4.4)**	**213**	**38.5 (4.5)**	
Income Level					
<10,000	138	26.1 (4.2)	120	31.2 (3.5)	0.371
11000- 20,000	54	30.5 (3.6)	52	31.4 (3.6)	0.940
21000- 30,000	14	30.0 (3.0)	19	29.9 (3.1)	0.731
31000- 40,000	11	31.2 (4.1)	8	32.3 (4.2)	0.270
41000- 50,000	10	31.0 (3.8)	4	33.5 (3.2)	0.790
51000-60,000	2	30.5 (5.5)	6	33.8 (4.3)	0.402
61,000 +	7	31.3 (4.1)	4	32.0 (4.0)	0.626
Total	**236**	**30.1 (4.3)**	**213**	**31.3 (4.1)**	
Employment Status					
Employed	111	28.6 (3.7)	117	36.7 (3.8)	0.001
Un-employed	125	27.9 (3.2)	96	30.8 (2.9)	0.927
Total	**236**	**28.3 (4.4)**	**213**	**33.7 (3.3)**	

*Score ranged from 25 to 44 with a mean knowledge score of 31.9 (sd ± 5.7) and a median score of 28 HIV knowledge score: Dover vs. Baltimore {35.4 (sd ± 4.4) vs.28.1 (sd ± 3.3)}, p <0.001).

observed among the employed in Dover compared to those of Baltimore (36.7 vs. 28.6, p < 0.001). Hence, being employed was also a factor in the overall knowledge of HIV/AIDS and risk factors among the participants of this study.

Attitude/Feelings

Table **3** presents the results obtained from a Likert Scale which was collapsed into "most likely" and "most unlikely" responses to assess respondents' attitude towards HIV/AIDS. On questions regarding respondents' ability and personal assertiveness to talk to male partners about their personal "sexual likes" and "dislikes" prior to sexual intercourse, over 81% vs. 70.6% of Baltimore and Dover respondents, respectively, were in affirmative regarding negotiating skills and ability to communicate with casual sex partners prior to intercourse and the differences were statistically significant (p < 0.001). Moreover, prior to initiating sexual intercourse, Baltimore subjects were more likely than their Dover counterparts, to ask their sexual partners about their sexual likes and dislikes (81.4% vs. 70.6%, p < 0.001), or ask whether the partner uses condoms in every casual sexual intercourse (39.4% vs. 29.1%, p < 0.027); or would leave it up to the partner to decide whether or not to use a condom (53.30% vs. 33.7%, p < 0.001). However, on the questions of the potential sex partner shooting drugs or having sex with men who shoot drugs, our findings revealed that Dover respondents were more likely than their Baltimore counterparts (39.4% vs. 29.1%, P <0.001) to ask their potential partners these important questions.

Table 3: Participants Responses to Selected Attitude Statements on HIV/AIDS and High-Risk Sexual Behavior in Baltimore MD and Dover, DE

HIV/AIDS Attitude/Feelings Statements	Percent Responses by Baltimore, MD Subjects (N= 236)			Percent Responses by Dover, DE Subjects (N= 213)			Sig. level
If I want to have sex with a man I would first talk to him about or ask him…	**Most likely**	**Most unlikely**		**Most likely**	**Most unlikely**		***p*-value**
About my/his sexual Likes and Dislikes	81.4%	18.6%		70.6%	29.4%		<0.001
Ask partner if he has ever had sex with men	24.2%	75.8%		26.1%	73.9%		0.380
Ask if he has ever had Sexually transmitted infections (STIs)	30.4%	69.6%		32.7%	67.3%		0.935
Ask if he shoots drugs or have had sex with men or women who shoot drugs	27.7%	72.3%		17.5%	82.5%		<0.001
Ask if he uses condoms in every casual sexual intercourse	39.4%	60.6%		29.1%	70.9%		0.027
I would leave it up to the partner to decide whether or not to use condom	53.0%	47.0%		33.7%	66.3%		<0.001
Indicate your agreement or Disagreement to these Statements	**Strongly Agree**	**Strongly Disagree**	**Don't Know**	**Strongly Agree**	**Strongly Disagree**	**Don't Know**	***p* - value**
I would discontinue a relationship with some one I love, if he/ she tested positive to HIV	53.5%	12.7%	33.8%	65.8%	8.5%	25.7	<0.001
AIDS patients who are Teachers, Doctors and Nurses, etc., should not be allowed to practice	56.9%	20.3%	22.8%	58.2%	18.8%	23.0%	0.375
I would only use condoms during sex if my partner appears to have HIV or AIDS	55.6%	9.7%	34.7%	67.5%	15.0%	17.5%	<0.001

In regard to individual personal relationship with sex partners, respondents of Dover were more likely than those of Baltimore to discontinue their relationship if their partners tested positive to HIV (65.8% vs. 53.5%, $p < 0.001$), and would only use condom during sex if their partner appears to have HIV/AIDS (67.5% vs. 55.6%, $p < 0.001$). This response was not surprising given the findings of similar studies elsewhere, among African Americans men and women, in recent years [9, 23, 24]. Therefore, their over-reliance on Implicit Personality Theory (ITP) here, to identify AIDS victims, was not only misleading, but also dangerous to the community under study. Williams and associates [9, 36] maintain that the use of IPT for ascertaining a partner's HIV/AIDS risk "is extremely unreliable and potentially fatal" because the only way to accurately determine someone's HIV/AIDS risk is through knowledge of that person's HIV serostatus. Accordingly, over half of the urban women in each of the two study sites (56.9% Baltimore vs. 58.2% Dover, $p = 0.375$) were of the opinion that teachers, doctors, nurses and other professionals should be relieved of their jobs if they test positive to HIV or develop fully diagnosed AIDS. These responses obviously have high negative implications for HIV/AIDS stigmatization intervention strategies in African-American community.

Sexual Behavior/Practices

Bi-variate analyses of the independent variables relating to participants' sexual behavior are presented in Table **4**. On the question of maintaining monogamous sexual relationships, our analysis on behavior further revealed that the mean number of sex partners among the subjects in the two urban communities in the previous twelve months, was 6. However, this was not statistically significantly different between the 2 sites. No statistically significant differences were also observed between the sites on condom use during every casual sex, and on the use of alcohol/drugs as aphrodisiac prior to sex. Further, about one out of every four respondents reported having one sex partner in the previous 12 months.

Moreover, residents of Baltimore were more likely to have sex with one person than their Dover counterparts (34% vs. 19%, $p < 0.001$). In addition, residents of Baltimore were more likely to knowingly have sex with an individual who shoots drugs compared to their counterparts in Dover (55.1% vs. 44.9%, $p = 0.025$). However, a very high proportion of the women in Baltimore (85%) and Dover (97%) did not feel comfortable, knowingly, having intercourse with partners infected with either HIV or other sexually transmitted infections. Finally, sexual orientation of the women did not indicate homosexual or bi-sexual tendencies in the two unequal inner-city communities.

DISCUSSION

Interest in the disparity of health care services for the· poor and ethnic minorities in the United States and, indeed, the problem of HIV/AIDS among African Americans within the past decade have supported the need to reform the nation's preventive health services. These inequalities, which have been the cornerstone of the US *Healthy People 2010/20* national health objectives, include health and social outcomes such as poor quality of life and high mortality rates, poverty, lack of accessibility to and appropriateness of care, and the' prevalence of certain degenerative conditions and infectious diseases, including AIDS. The dearth of preventive health services for the high-risk groups – adolescent and young adult African American women and their children is critical in terms of early HIV/AIDS intervention programs, as well as effective substance

Table 4: Participants Percent Behavior Responses to Selected HIV/AIDS Problem Statements in Baltimore, MD & Dover DE

HIV/AIDS & High-risk Behavior Statements	Percent Responses by Baltimore, MD Subjects (N =236)		Percent Responses by Dover, DE Subjects (N =213)		
In the Past 12 months I have:	**Yes**	**No**	**YES**	**No**	***P* - value**
Had Sex with 2 – 7+ men	52.9%	47.1%	51.6%	48.4%	0.923
Had Sex with only one	34%	66%	19.0%	81.0%	<0.001
Used drugs/alcohol to get high prior to sex	61.0%	39.0%	57.8%	42.2%	0.323
Knowingly had sex with someone who shoot drugs	55.1%	44.9%	44.9%	45.5%	0.025
Knowingly had sex with someone with HIV or other STIs	14. 9%	75.1%	3.3%	96.7%	<0.001
Used Condoms in every Casual Sex	28.4%	71.6%	29.1 %	70.9%	0.835

abuse treatment, education, and counseling services. The epidemic nature of the disease among this high-risk group poses the concerns of African American women's rights and underscores their physical, emotional, and socio-cultural vulnerability to HIV/AIDS.

A number of studies have revealed significant differences in socioeconomic status (SES) and its effects on health-protective behavior and promotion among races, genders, and different age groups, while national and local health statistics-have shown large deficits for ethnic minorities and the poor [25, 26]. Theories have also been developed and tested for attitudes, knowledge, and behavior of women for the prevention and risk reduction of HIV/AIDS in rural and urban settings [27-29]. Development of these concepts have been generally based on research-driven knowledge of the pathophysiology of HIV/AIDS and some psychosocial dynamics of transmission rooted in knowledge, attitude, and behavior [29-31]. However, few studies have examined and compared patterns of knowledge, attitudes, and behavior regarding HIV /AIDS among major metropolis and minor urban African American women of relatively similar ages, educational levels, and socioeconomic status [30].

This study identified some key similarities and differences between the two un-identical US urban populations of Baltimore (large metropolis) in Maryland and Dover, (smaller urban center) in the State of Delaware. First, the majority of respondents in both population groups were relatively young, poor, and mostly divorced or never married, African American women, aged between 18 and 60 years (median age < 28 years). Secondly, the women from smaller urban community of Dover had a higher level of education and were more knowledgeable about HIV/AIDS/risk factors than their urban counterparts in larger Baltimore metropolis. Further, education and age were correlated with the overall respondents' levels of knowledge and attitudes about HIV infections. This, however, was not surprising given the results of similar studies carried out elsewhere on the subject in recent years [2, 22-24]. The positive effect of age on the respondents' attitudes, knowledge, and behaviors may be explained, in part, by the possibility that the older respondents may have had more time, and experiences to transition through the Transtheoretical Model of Behavior Change (TTM) from pre-contemplation to contemplation, action and maintenance stages of change [32]. These factors may, therefore, need to be studied in greater depth within the population, to determine their complex relationship, and the impact of their eventual outcomes on the behavioral change process.

The current rates of HIV infections in the two study sites, though significantly reduced among other ethnic groups, have continued as a major health problem facing African American women and men in most inner-city and rural communities across the United States. The changing rates of HIV infections in our study sites, to a large extent, depend not only on factors that influence the average rates of exposure of susceptible persons to infected ones, but may also depend on the rates of acquisition of infection by those exposed, as well as, the transmission and duration of infectivity among heterosexual and homosexual African Americans [33]. Other factors responsible for this development include poverty, ignorance, myths and misconceptions about health-related issues, psychoactive drug use, and life in the street, incarcerations, and related commercial sexual behavior.

While African American women, as well as, men might not have been placed at risk of HIV infection because of their ethnicity, St Lawrence and associates [34, 35], however, believe that race and ethnicity may be a reflection of the socioeconomic and cultural disparities that are associated with HIV transmission. For instance, in the sample we analyzed, there were no differences in income dimension between the two groups, whether they resided in a small urban community such as Dover or a large metropolis of Baltimore, as the majority of respondents in this study (88.43%) were either at or below poverty level. There was also a sharp contrast in the employment dimensions among the women (Baltimore metropolis, 53% unemployed, vs. Dover urban, 41% unemployed), who, although unemployed, faced different social choices, high-risk behaviors, and unhealthy lifestyles.

Third, although respondents from Dover had higher level of education, and were more knowledgeable about HIV/AIDS and related high-risk behavioral factors than those from Baltimore, their knowledge in this study did not translate into safer sexual practices for the prevention & control of HIV/AIDS in their community. For example, our results revealed that African-American women in Dover (81%) were more likely than those of Baltimore (66%) to have sexual relations with more than one male partner in a 12-months period. Furthermore, approximately, 68% of Dover subjects vs. 46% Baltimore respondents had indicated that they will only use condoms during intercourse if their male

sexual partners appear have HIV or AIDS. Therefore, our subjects' overreliance on Implicit Personality Theory (IPT) to identify HIV/AIDS patients was not only misleading but also dangerous to the community under study. Williams and associates [36] maintain that the use of IPT to identify a partner's HIV/AIDS risk "is extremely unreliable and potentially fatal" because the only way to accurately determine someone's HIV/AIDS risk is through knowledge of that person's HIV serostatus. They further opined that health-promotion efforts to reduce AIDS risk behavior among individuals must expose the ineffectiveness of their use of IPT to assess the riskiness of partners/potential sex partners. IPT judges an individual's riskiness of health threats based on his/her perception of a partner's appearance – how well he/she dresses, how nice-looking he/she is or where he/she resides (urban vs. rural).

Finally our analysis on behavior/practices further revealed that the mean number of sex partners among the subjects in the two unequal urban communities in the previous 12 months was 6. This was in contrast to recent studies by Williams, Ekundayo, Udezulu, *et al*. [9] and; Williams & Ekundayo [33] indicating a mean of 3.5 and 4 sex partners, respectively, for urban African-American females in Baltimore during the same period. However, a significant number of the urban women in our two study sites, respectively, reported having one sex partner in the previous 12 months.

LIMITATIONS

There were a number of limitations to this study. First, our comparisons within the population and generalizability could have been more enhanced if cases were matched within the populations. This could have allowed for a determination of whether there were real differences within the sample population and helped to compare them with other ethnic communities. Second, a convenience sampling of the respondents was conducted, and the analyses could have benefited more from a larger sample size or a randomized selection approach that would better fit the theorem of central limits. Third, although the surveys addressed knowledge and attitude differences among the urban women, they did not address behavior similarities between the different age and educational groups even though they face different life choices. Fourth, differences in the data obtained from official and semiofficial health agencies in Maryland created difficulties in determining a reliable baseline for the distribution of HIV/AIDS in the Greater inner-city Baltimore, as well as comparing them with those of smaller urban center of Dover, Delaware. Finally, the precision of the questionnaire used, though valid for cultural, gender-specificity, and sensitivity, may not be so for the life-choice decision making in complex situational dynamics, regardless of gender, culture, race or socioeconomic status.

One of the most disturbing aspects of our findings was the high level of ignorance, ambivalent attitudes, mistrust and misconceptions by the respondents regarding various aspects of intervention practices and lifestyle factors toward HIV infection in the two urban communities. Such negative attitudes have been documented in the past to have hindered efforts to positively engage African American communities in meaningful HIV/AIDS prevention [30, 31]. There are also other evidence that these ambivalent attitudes, high-risk sexual practices and mistrust can blunt the effectiveness of health promotion and other HIV intervention programs that are sponsored by federal, state and local health institutions [33, 34]. Overall, in this study, the use of condom to prevent HIV and absolute knowledge about HIV/IDS and risk-factors were relatively low. However, while the women did not seem to feel being particularly susceptible to HIV/AIDS, a large proportion of the respondents understood the seriousness and complications of HIV/AIDS in their respective communities. Again, although the level of knowledge of HIV/AIDS was higher among subjects in smaller inner-city Dover, than those of greater Baltimore metropolis, the overall respondents' beliefs, attitude/feelings, behavior and potentials for behavioral change did not differ significantly among the women in the two un-identical urban communities. Studies with wider population samples have been advocated.

In conclusion, this study undoubtedly has major implications for specific educational programs to contain the unabated HIV/AIDS epidemic not only among African American women but also the generality of people of color in the two study sites. Therefore the intervention program when developed and implemented must aim at modifying the community at-risk behavior, taking into account the cultural and behavioral patterns, socioeconomic factors, social norms and ethnographic infrastructure of the minority communities of Baltimore and Dover. Hence, there is the need to (a) develop a special network of community groups and public health practitioners to design effective health promotion and education programs for the prevention and control of HIV/AIDS in Baltimore and Dover (b) increase ethnic minority access to HIV/AIDS testing and treatment of other STIs, (c)

strengthen the existing reproductive health education/services (d) strengthen the existing incidence data collection system to include sex partners, psychoactive drug abusers, risky sexual behavior and lifestyles factors as well as economic and social pressures of the community and (e) employ and deploy more minority health education/promotion practitioners for effective evidenced-based culturally-sensitive health education in minority communities towards HIV/AIDS prevention and risk reduction activities.

REFERENCES

[1] Karon I, Fleming P, Steketee RW, DeCock K. HIV in the United States at the turn of the century: An epidemic in transition. Am J Public Health 2001; 91: 1060-8. http://dx.doi.org/10.2105/AJPH.91.7.1060

[2] Sterk CE, Theall KP, Elifson KW. Effectiveness of a risk reduction Intervention among African American women who use crack cocaine. AIDS Educ Prev 2003; 15: 15-32. http://dx.doi.org/10.1521/aeap.15.1.15.23843

[3] Lauby JL, Smith PJ, Stark M, Person B, Adams J. A community-level HIV prevention intervention for inner-city women: Results of the women and infants Demonstration project. Am J Public Health 2000; 90: 216-22. http://dx.doi.org/10.2105/AJPH.90.2.216

[4] Theall JP, Sterk CD, Elifson KW, Kidder D. Factors associated with positive HIV serostatus among women who use drugs: Continued evidence for expanding factors of influence. Public Health Rep 2003; 118: 415-24.

[5] US Department of Health and Human Services. Healthy People 2010 (conference ed. in 2 vols.), Washington DC: US Dept. of Health & Human Services 2000.

[6] National Prevention Council, Office of the Surgeon General, U.S. Department of Health and Human Services. National Prevention Strategy. Washington, DC: 2011; pp. 6-34.

[7] Centers for Disease Control & Prevention. Trends in HIV/AIDS diagnosis – 33 states, 2001-2004. MMWR 2005; 54: 1149-53.

[8] Johnson EH, Grant L, Hinkle YA, Gilbert D, Willis C, Hoopwood T. Do African-American men and women differ in their knowledge about AIDS, attitudes condoms and sexual behaviors? J Natl Med Assoc 1992; 64: 49-64.

[9] Williams PB, Ekundayo OT, Udezulu IE, Omishakin AM. An Ethnically-sensitive and gender-specific HIV/AIDS Assessment of African-American Women: A comparative study of urban and rural American communities. Fam Community Health 2003; 26: 106-23. http://dx.doi.org/10.1097/00003727-200304000-00004

[10] Centers for Disease Control & Prevention. HIV/AIDS Surveillance Report. Atlanta: USDHHS 2005; 17: 1-46.

[11] Braithwaite RL, Taylor SE, Treadwell HM. Health Issues in the Black Community, 3rd ed. San Francisco: Jossey-Bass Inc., 2009.

[12] Centers for Disease Control and Prevention. HIV/AIDS among African Americans. CDC Fact Sheet 2013; pp. 1-2, May.

[13] CDC. Fighting HIV among African Americans. CDC Media Facts, February 2009: 1-6.

[14] Centers for Disease Control and Prevention. HIV/AIDS and African Americans. HIV Surveillance Report: Diagnoses of HIV infection and AIDS in the US & Dependent Areas. Office of Minority Health 2011; vol. 23.

[15] Maryland Infectious Disease & Environmental Health Adm. Persons living with HIV/AIDS by race/ethnicity by major cities May 2012; pp. 6-15.

[16] Delaware Health and Social Services. Delaware Vital Statistics Annual Report. Dover, DE: Bureau of Health Planning & Resource Management, Spring 2009.

[17] Baltimore City Health Department, Division of Communicable Diseases and Epidemiology surveillance. Baltimore, MD: BCHD; April 2009.

[18] Dixon S. HIV/AIDS: Crisis in Baltimore City Neighborhoods. Baltimore City Council Commission on HIV/AIDS Prevention and treatment; May 20 2002.

[19] Dancy BL. The development of an ethnically-sensitive and gender-specific AIDS questionnaire for African-American women. Health Values 1991; 15: 41-8.

[20] Nunnally JC. Theory of Measurement Error: A Psychometric Theory. New York, NY: McGraw-Hill 1967.

[21] Glanz K, Rimer BK, Lews FM. Health Behavior and Health Education: Theory, Research and Practice, 3rd ed. San Francisco, CA: Jossey-Bass 2002.

[22] Statistical Package for the Social Sciences. SPSS Version 17.0, Chicago, IL: SPSS Inc.

[23] Osmond H, Pollack LM, Paul JP, Catania JA. Changes in prevalence of HIV and sexual risk behavior in men who have sex with men in San Francisco: 1997-2002. Am J Public Health 2007; 97: 1677-83. http://dx.doi.org/10.2105/AJPH.2005.062851

[24] Williams PB. A profile of HIV/AIDS epidemic in the African-American community: implications for a culturally-sensitive & ethnic-specific health promotion/education program for African Americans. Int J Health Prom Educ 2002; 9: 8-15.

[25] Melkote SR, Muppidi SR, Goswami D. Social and economic factors in an integrated behavioral and societal approach to communications in HIV/AIDS. J Health Commun 2000; 5: 17-27. http://dx.doi.org/10.1080/10810730050019537

[26] Montoya ID. Changes in economically disadvantaged adolescents' knowledge and beliefs about HIV/AIDS. Clin Lab Sci 2001; 14: 167-72.

[27] Valdiserri RO, West GR, Moore M, Darrow WW, Hinman AR. Structuring HIV prevention service delivery systems on the basis of social science theory. J Community Health 1992; 17: 259-69. http://dx.doi.org/10.1007/BF01324356

[28] Romer D, Hornik R. HIV education for youth: The importance of social consensus in behavior change. AIDS Care 1992; 4: 285-303. http://dx.doi.org/10.1080/09540129208253100

[29] Somlai AM, Kelly JA, Heckman TG, Hackl K, Runge I, Wright C. Life optimism, substance use, and AIDS specific attitudes associated with HIV risk behavior among disadvantaged inner-city women. J Women's Health Gend Based Med 2000; 9: 1101-11. http://dx.doi.org/10.1089/152460900446018

[30] Essien EJ, Meshack AF, Peters RJ, Ogungbade GO, Osemene NI. Strategies to prevent HIV transmission among heterosexual African-American women. Int J Equity Health 2005; 4: 4. http://dx.doi.org/10.1186/1475-9276-4-4

[31] Malloy TE, Fisher WA, Albright L, Misovich SJ, Fisher JD. Interpersonal perception of AIDS risk potential of persons of the opposite sex. Health Psychol 1997; 16: 480-6. http://dx.doi.org/10.1037/0278-6133.16.5.480

[32] Proschaska JO, Reddings CA, Evers KE. The Transtheoretical Model and Stages of Change. In: Glanz, Karen et al., eds. Health Behavior and Health Education: Theory, Research and Practice, 3rd ed. San Francisco, CA: Jossey-Bass 2002.

[33] Williams PB, Ekundayo O. Study of the distribution and factors affecting syphilis epidemic among inner-city minorities of Baltimore. Public Health 2001; 115: 387-93. http://dx.doi.org/10.1016/S0033-3506(01)00484-X

[34] St Lawrence JS, Eldridge GD, Reitman D, Little CE, Shelby MC, Brasfield T. Factors influencing condom use among African-American women: Implications for risk reduction interventions. Am J Community Psychol 1998; 26: 7-28. http://dx.doi.org/10.1023/A:1021877906707

[35] Hall HI, An Q, Hutchinson AB, Samson S. Estimating the lifetime risk of diagnosis of the HIV infection in 33 States, 2004 – 2005. J Acquir Immune Defic Syndr 2008; 49: 294-7. http://dx.doi.org/10.1097/QAI.0b013e3181893f17

[36] Williams SS, Kimble DL, Covell NH, *et al.* College students use of implicit personality theory instead of safer sex. J Appl Soc Psychol 1992; 22: 921-33. http://dx.doi.org/10.1111/j.1559-1816.1992.tb00934.x

Received on 21-10-2013 Accepted on 16-12-2013 Published on 26-12-2013

DOI: http://dx.doi.org/10.12970/2310-998X.2013.01.02.3