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ASPIRATION AND PREPARATION OF AFRICAN AND CAUCASIAN
AMERICAN HIGH SCHOOL STUDENTS INTERESTED IN
HEALTH CAREERS FOR THE YEARS 1975, 1985 AND 1995

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Abstract: This study investigated changes in selected measures of educational aspiration, preparation, and achievement of African and Caucasian American high school students for the years 1975, 1985, and 1995. A 5% sample of all ACT test takers for each of the years comprised the initial sample from which those high school students indicating a commitment for a health careers collegiate major were selected. Crosstabulation was used to present the data. In view of the large sample size statistical tests of inference were not considered necessary.

In general, when comparing the three time periods, we found increased interest in health careers, higher levels of educational aspiration, greater interest in college

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preparatory programs, more science completed, and higher levels of achievement as measured by high school **grade** point average and the ACT composite score. Women showed a greater increase than men for **all** variables. While there were some **declines** between 1975 and 1985, the 1995 period was most favorable with the exception of Caucasian male ACT scores.

We recommend continued vigilance in high school programing to avoid gender and minority stereotyping, concern for the **nonbaccalaureate** bound student and gratefully acknowledge the accomplishments of minorities and women.

Health careers continue to provide interesting employment opportunities for the nation's youth and adults. Employment options are typically well paid, challenging and provide one a sense of contribution to society. There is also the concern for sufficient numbers of **well** prepared high school students and adults to pursue health career opportunities. Previous research (**Rzonca & Snider, 1995**) recommended the need to separately assess the interests of minority and majority students over an extended time period. This study attempts to provide the trends which describe the health careers interests of African and Caucasian American high school students for the years 1975, 1985, and 1995. The data source comes from a 5'%0 national sample of ACT test takers in these years. The trends that are presented reflect this sample and data of the complete file of test takers, while the absolute numbers reflect 5% of the ACT test **taking** pool. This study concentrates on Caucasian high school students as the largest traditional group which participates in post secondary education and African American **high** school students, the largest minority

represented in this test taking pool. We provide data and trends which describe both interests and preparation.

Literature Review

Career development and career decision-making have received significant attention both in theory and research. Career decision-making is an ongoing process that occurs over an extended period of time. As an individual matures vocationally, (s)he proceeds through a series of developmental life stages with each stage affording him/her opportunities to deal with specific tasks (Ansell & Hansen, 1971). In addition, according to Ginzberg, Ginsburg, Axelrad and Herma (1951), by the age of about seventeen or eighteen, an individual makes a transition to the final stage, *period of realistic choice making*, of three developmental stages. In short, researchers have examined career development in which a theoretical framework for career decision-making has grown.

Most studies of career development, however, are limited to certain samples. Prominent career development theories fail to relate socioeconomic and cultural variables to the process of career choice (Dillard, 1980). This researcher noted that insufficient attention is given to the career differences between African and Caucasian American students and to those between African American students of differing socioeconomic backgrounds. Fisher and Griggs (1992) noted that career development theories derived from the research on predominantly white middle class individuals, have often been used to describe the career patterns of minorities (racial/ethnic groups in the United States). Further, theory improvement can result from an increased understanding of the complex relationships among socio-demographic and psychological

variables and career maturity, career aspirations, and career expectations (McNair & Brown, 1983). In addition, many factors such as academic achievement, high school characteristics, community size, ethnicity, family background, and gender affect student's career development.

Cosby (1971) noted four questionable assumptions dealing with the interplay between the aspirations of high school students and their subsequent career attainments. The assumption related to this study concerning the occupational aspirations of African American youths notes that previous studies of racial differences in career aspirations have often reported that African American youths tend to have lower-level career aspirations than their Caucasian American counterparts. In fact, in a review of often studies that made African and Caucasian American comparisons, eight had reported that Caucasians tend to have higher career aspirations (Cosby, 1971).

Cosby subsequently examined this assumption and found that a complex relationship existed. The researcher failed to find a consistent tendency for Caucasians to express higher aspirations, which findings did not agree with the previous research that relates aspirations to race. In comparing African and Caucasian Americans' career aspirations while controlling for selected socioeconomic characteristics, Cosby found that African Americans had higher aspirations in the majority of the comparisons. Nonetheless, Ginzberg et al. contend that the "*period of realistic choice making*" does not take place until usually the end of the seventeenth year. This study observed students before they were in that period of "*realistic choice making.*" Also, this study did not consider social and educational characteristics that may be important in career aspirations.

Kelly and Wingrove (1975) conducted a study beginning with sixth graders and concluding with twelfth graders. The study included subjects from the end of the fantasy period through the whole of the period of tentative choices and into Ginzberg's final stage of realistic choices. The researchers wanted to test their hypotheses that the gap between aspirations at the upper grade levels would be (a) greater for African Americans than Caucasian Americans and (b) greater for African American males than African American females. They found that African Americans expressed higher career choices. However, this study failed to consider both academic preparation and academic performance, which may be good predictors of career choices. Because of geographical location of the students and/or the sampling process, this study may not be generalized to the national population.

McNair and Brown (1983) conducted research studying the career aspirations of minorities and females, because they are often excluded from samples. They collected information from tenth graders about career aspirations and expectations, parental influence, socioeconomic status, and certainty of parental influence. They found no difference between African and Caucasian Americans in the prediction of career aspirations. A possible limitation of the study is that the authors did not include social or academic factors that may influence career aspirations. Possibly, another fault of the study is that the authors collected data from tenth graders.

Gender

Using **multivariate** techniques conducted on data from the National Longitudinal Study of the High School Graduating Class of 1972 (NLS), Dawkins (1981) found that the most important

predictors of career aspiration tended to differ by sex. The best predictors of career aspiration were community size and social class for males and high school **curriculum**, aptitude, and **self-concept** for females. He also noted that even though approximately one-third of each group aspired to professional occupations, fewer females aspired to careers outside those traditionally identified for women. The strength of the study stems from using data from a nationally representative sample and choosing from the literature good predictor variables. Perhaps, a possible weakness of the study is the time period.

Jepsen (1995) notes that **Wilson** and **Boldizar** (1990) studied gender segregation in twenty college majors using **large** samples (over 900,000) of 1983 graduating seniors and aggregated data from several sources. They found that women were concentrated in fields with the lowest mathematics achievement and the lowest income potential. They also noted that the importance of high school aspirations suggests that the source of gender segregation occurs before the formation of high school aspirations. Limitations of this study include both the groups examined and variables used. It was also noted that high school aspiration is an overwhelming predictor of eventual major.

Academic Ability

High school academic performance has been shown to be related to level of career aspiration (**Picou**,1973). In a study to determine the relationship of aspirations to performance in school, **Harrison** (1969) noted that successful students expect and desire more education and higher status positions than **nonsuccessful** students. He also observed the strong influence of academic performance on occupational aspirations in the following manner, "... performance in

school, it appears, has a major role in the development of real and ideal educational and occupational aspirations, regardless of the home background of the students and of their sex.”

Dawkins (1989) noted from a study using the National Longitudinal Survey (NLS) that career aspirations are strongly correlated with educational plans and ability. He also noted that his findings were consistent with previous studies that pointed to importance of educational factors more so than background factors in terms of their more direct impact on occupational outcomes.

Socioeconomic Background

Researchers have long recognized that career choice is influenced by socioeconomic status (SES), or, for adolescents in particular, status of the family (McLaughlin, Hunt, & Montgomery, 1976). Picou (1973) also observes that a large body of theoretical statements and empirical studies currently exists which documents that adolescents’ occupational aspirations are positively related to socioeconomic status. In fact, McLaughlin et al. cite several researchers who concluded that individuals from high SES family situations have higher career aspirations than those from lower SES (Empey, 1956; and Sewell, Hailer, & Straus, 1957). Socioeconomic status is often linked with other variables such as ethnicity, intelligence or academic ability (Picou, 1973).

Bogie (1976) conducted a study focusing on the relationship between aspiration-expectation discrepancies and selected “career choice variables”; family socioeconomic status, mental ability, scholastic performance, and region of residence. He observed the possibility that seniors from upper status families perceive fewer structural hurdles to the achievement of high

status goals, that they have greater **financial** resources at their **disposal**, and that they are more familiar with the subtleties of weaving their way through the preparatory phases of career selection than are their low socioeconomic status counterparts. In addition, he concluded that social **and** structural barriers related to sex and unfavorable family socioeconomic status represented the major blocks in the achievement of high level aspirations.

Generally, researchers have presented conflicting points of view on the career aspirations of African and Caucasian Americans. While some investigators have reported that African American students have aspirations similar to those of students of other **racial** backgrounds, others have declared just the opposite (Smith, 1982). Since this study examines three distinctive years over an extended period (1975, 1985, 1995), this study may assist in explaining the inconsistencies in previous studies concerning the career aspiration of African and Caucasian Americans.

Sample

This study was a longitudinal comparison of the data collected on African and Caucasian American high school students in the years 1975, 1985, and 1995. The ACT Assessment, which consists of three sections: High School Course Grade Information, ACT Interest Inventory, and Student **Profile** Section, is a national college entrance examination. The data used in this study were collected from the American College Testing Assessment.

The sample chosen for this study was limited to students who indicated their college major. As previously noted, research has shown that high school career aspiration is an overwhelming predictor of college major (.74) (Wilson & Boldizar, 1990). The total number of

students nationwide who take the ACT Assessment annually is approximately one million. From the data, a 5% random sample was drawn from the students who took the ACT Assessment in 1975 (28,422 students), 1985 (34,197 students), and 1995 (37,070 students). From these 5% samples, there were totals, respectively, of 2,527, 3,265, and 4,546 African American students studied. Of the samples of African American students, in 1975 there were 1,595 females and 932 males; in 1985 there were 1,981 females and 1,284 males; and in 1995 there were 2,730 females and 1,816 males. Also from the 5% sample there were 25,895, 30,932, and 32,524 Caucasian American students, respectively. Of the samples of Caucasian American students, in 1975 there were 13,925 females and 11,970 males; in 1985 there were 16,737 females and 14,195 males; and in 1995 there were 18,417 females and 14,107 males. Generally, these are college-bound students usually in their junior and senior year of high school.

Research Question One

How Have High School Student Interests in Health Careers Changed?

Tables 1 and 2 describe the interests of high school students in health careers for the years 1975, 1985, and 1995 as identified in self-reported data from ACT assessment test takers. Table 1 describes the interests of male African American high school students (MAAHSS) and female African American high school students (FAAHSS). Table 2 presents similar data for male Caucasian American high school students (MCAHSS) and female Caucasian American high school students (FCAHSS).

Table 1 shows a decline in health careers interest by MAAHSS from 1975 (8.5%) to 1985 (5.1%) followed by an increase to 11.6% in 1995. A similar trend exists for FAAHSS in that

Table 1

African American High School Students Interested in Health Careers for the
Years 1975.1985. 1995*

Year		Health Professions	Other Professions	Total
1975 Males	Count	77	830	907
	Row Percent	8.5%	91.5%	100.0%
1975 Females	Count	400	1,169	1,569
	Row Percent	25.5%	74.5%	100.0%
1985 Males	Count	64	1,187	1,251
	Row Percent	5.1%	94.9%	100.0%
1985 Females	Count	442	1,510	1,952
	Row Percent	22.6%	77.4%	100.0%
1995 Males	Count	207	1,570	1,777
	Row Percent	11.6%	88.4%	100.0%
1995 Females	Count	895	1,805	2,700
	Row Percent	33.1%	66.9%	100.0%
Total	Count	2,085	8,071	10,156
	Row Percent	20.5%	79.5%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year.

Table 2

Caucasian American High School Students Interested in Health Careers for the
Years 1975.1985. 1995*

Year		Health Professions	Other Professions	Total
1975 Males	Count	1,280	10,588	11,868
	Row Percent	10.8%	89.2570	100.070
1975 Females	Count	3,387	10,441	13,825
	Row Percent	24.5%	75.570	100.0%
1985 Males	Count	1,201	12,842	14,043
	Row Percent	8.6%	91.4%	100.0%
1985 Females	Count	3,304	13,289	16,593
	Row Percent	19.9%	80.1%	100.0%
1995 Males	Count	1,720	12,236	13,956
	Row Percent	12.3%	87.7%	100.0%
1995 Females	Count	4,634	13,669	18,303
	Row Percent	25.3%	74.7%	100.0%
Total	count	15,526	73,065	88,591
	Row Percent	17.5%	82.5%	100.0%

*Numbers represent a 5% national sample of ACT *test takers* for each year

their interest in health careers slightly declines from 25.5% in 1975 to 22.6% in 1985, followed by an increase to 33.1% in 1995. Again in Table 2 we see a similar trend for Caucasian American high school students. Both male and female students show a decline from 1975 to 1985 and rebound with the highest degree of health careers interest in 1995. In comparing data from Tables 1 and 2 we see that MAAHSS show the least amount of interest in health careers closely followed by MCAHSS. The highest interest in health careers is shown by FAAHSS followed by FCAHSS. In response to research question one, we see that interest in health careers is highest for all groups in the most recent period of 1995 and lowest in 1985.

Research Question Two

How Have the Educational Aspirations Changed?

Table 3 presents the educational aspirations of African American male and female high school students for the years 1975, 1985, and 1995. Aspiration categories represent post secondary experiences of (1) two years or less, (2) the baccalaureate degree, (3) graduate programs and (4) the classification of professional programs. Table 4 presents the same information for Caucasian American high school students.

The level of aspiration for male African American high school students (MAAHSS) is consistent in the two year category between the year 1975 (12.2%) and 1985 (12.07%), but declines to 6.9% in 1995. Female African American high school students (FAAHSS) show a more serious decline in this category starting with 20.7% in 1975, dropping to 15.8% in 1985 and dropping further to 6.7% in 1995. For the baccalaureate category, MAAHSS choose consistently across the three time periods while FAAHSS consistently dropped in the percentage choosing a

Table 3

African American High School Students by Highest Level of Education Planned
for the Years 1975, 1985, 1995*

Year		2 Yr Coil/ Voc-Tech	Bachelor's Degree	1-2 Yr Graduate	Prof. Degree	Total
1975 Males	Count	105	344	198	216	863
	Row Percent	12.2%	39.9%	22.9%	25.0%	100.0%
1975 Females	Count	304	554	257	352	1,467
	Row Percent	20.7%	37.8%	17.5%	24.0%	100.0%
1985 Males	Count	143	485	178	384	1,190
	Row Percent	12.0%	40.8%	15.0%	32.3%	100.0%
1985 Females	Count	294	624	291	651	1,860
	Row Percent	15.8%	33.5%	15.6%	35.0%	100.0%
1995 Males	Count	117	653	371	553	1,694
	Row Percent	6.9%	38.5%	21.9%	32.6%	100.0%
1995 Females	Count	173	679	495	1,232	2,579
	Row Percent	6.7%	26.3%	19.2%	47.8%	100.0%
Total	Count	1,136	3,339	1,790	3,388	9,653
	Row Percent	11.8%	34.6%	18.5%	35.1%	100.0%

*Numbers represent a 570 national sample of ACT test takers for each year

baccalaureate degree from 37.8% in 1975, to 33.5% in 1985 and 26.3% in 1995.

The percentages for MAAHSS for graduate programs are similar in 1975 and 1995 but indicated a decline during the interim 1985 period to 15.6%. The percentages for FAAHSS in the graduate category show a slight decline from 1975 to 1985 (17.5% to 15.670) but rebound to 19.2% in 1995. The most growth for both MAAHSS and FAAHSS is shown in the category of aspiration for professional degrees. While more dramatic in the case of FAAHSS, both male and female high school students tend to show less interest in less than baccalaureate programs when 1975 is compared to 1995. This decline is compensated by increased interest in graduate and professional degrees. In 1995, FAAHSS are much more interested in professional degrees (47.8%) when compared with MAAHSS (32.6%). In this same period, males are more interested in graduate programs (21.9%) than female students (19.2%).

Table 4 presents similar trends for both male Caucasian American high school students (MCAHSS) and female Caucasian American high school students (FCAHSS). Both groups show a similar decline in interest in baccalaureate and less than baccalaureate programs. Again this interest is compensated by increased interest in graduate and professional programs. For 1995, the percentages are not markedly different between Caucasian American males and females.

While the trends are similar for both males and females, the percentages as applied to aspiration differ somewhat over the years and in the most recent time period, 1995. The percentages are similar in 1995 for both MAAHSS and MCAHSS in the baccalaureate and less categories. The percentage of MAAHSS aspiring to graduate programs in 1995 (21.970) is slightly lower than the percentage for MCAHSS (23.2%). The reverse is true for the professional

Table 4

Caucasian American High School Students by Highest Level of Education Planned
for the Years 1975, 1985, 1995

Year		2 Yr Coil/ Voc-Tech	Bachelor's Degree	1-2 Yr Graduate	Prof. Degree	Total
1975 Males	Count	1,368	4,993	2,005	2,874	11,240
	Row Percent	12.2%	44.4%	17.8%	25.6%	100.0%
1975 Females	Count	3,111	6,179	1,873	1,756	12,919
	Row Percent	24.1%	47.8%	14.5%	13.6%	100.0%
1985 Males	Count	1,258	5,913	2,636	3,696	13,503
	Row Percent	9.3%	43.8%	19.5%	27.4%	100.0%
1985 Females	Count	2,382	6,947	2,739	3,870	15,938
	Row Percent	14.9%	43.6%	17.2%	24.3%	100.0%
1995 Males	Count	938	5,393	3,163	4,052	13,546
	Row Percent	6.9%	39.8%	23.4%	29.9%	100.0%
1995 Females	Count	1,270	6,563	4,090	5,734	17,657
	Row Percent	7.2%	37.2%	23.2%	32.5%	100.0%
Total	Count	10,327	35,988	16,506	21,982	84,803
	Row Percent	12.2%	42.4%	19.5%	25.9%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year

degree category in 1995, with 32.6% for MAAHSS and 29.9% for MCAHHS. In reviewing the 1995 data for female students, one notes higher interest in baccalaureate and graduate degrees for FCAHSS when compared with their FAAHSS counterparts and a dramatically higher level of interest for FAAHSS in the professional category, 47.8% for FAAHSS and 32.5% for FCAHSS.

Research Question Three

Has There Been a Change in the Type of High School Preparatory Programs?

Tables 5 and 6 present cross tabulations for African and Caucasian high school students, respectively by the type of their self-reported high school preparatory program. Table 5, describing African American high school students, shows an increase in the Business/Commercial programs from 1975 to 1985 for both MAAHSS and FAAHSS followed by a decrease for both groups in the 1995 data. There is also a steady decrease for both groups in the Vocational/Occupational category. African American males selecting this category drop from 16.0% in 1975 to 8.9% in 1995 while African American females decrease from 17.6% in 1975 to 8.6% in 1995. Conversely both groups show a steady increase in selection of the college preparatory curricula over the selected time period. Similarities again describe both groups in that both decline in the selection of the general curricula from 1975 to 1985 and then increase slightly in their selection for the year 1995.

Table 6 portrays similar trends for Caucasian American high school students. In the case of both male and female students, participation in the business/commercial curricula increase from 1975 to 1985 and then decrease in 1995. There is a steady decline in the percentage of students selecting vocational/occupational curricula and a steady increase in those selecting the

Table 5

African American High School Students by High School Program for the

Years 1975, 1985, 1995*

Year		Business/ Comm	Voc- Occup.	College Prep	Other/ General	Total
1975 Males	Count	77	146	467	224	914
	Row Percent	8.4%	16.0%	51.1%	24.5%	100.0%
1975 Females	Count	211	272	695	367	1,545
	Row Percent	13.7%	17.6%	45.0%	23.8%	100.0%
1985 Males	Count	154	191	663	236	1,244
	Row Percent	12.4%	15.4%	53.3%	19.0%	100.0%
1985 Females	Count	373	278	978	299	1,928
	Row Percent	19.3%	14.4%	50.7%	15.5%	100.0%
1995 Males	Count	140	158	1,102	375	1,775
	Row Percent	7.9%	8.9%	62.1%	21.1%	100.0%
1995 Females	Count	236	231	1,754	474	2,695
	Row Percent	8.8%	8.6%	65.1%	17.6%	100.0%
Total	Count	1,191	1,276	5,659	1,975	10,101
	Row Percent	11.8%	12.6%	56.0%	19.6%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year

Table 6

Caucasian American High School Students by High School Program for the
Years 1975.1985. 1995*

Year		Business/ Comm	Voc- Occup.	College Prep	Other/ General	Total
1975 Males	Count	507	1,159	7,623	2,566	11,855
	Row Percent	4.3%	9.8%	64.3%	21.6%	100.0%
1975 Females	Count	1,341	1,014	7,925	3,472	13,752
	Row Percent	9.8%	7.4%	57.6%	25.2%	100.0%
1985 Males	count	988	1,367	9,332	2,261	13,948
	Row Percent	7.1%	9.8%	66.9%	16.2%	100.0%
985 Females	Count	2,139	972	10,647	2,647	16,405
	Row Percent	13.0%	5.9%	64.9%	16.1%	100.0%
995 Males	Count	568	893	9,934	2,573	13,968
	Row Percent	4.1%	6.4%	71.1%	18.4%	100.0%
1995 Females	Count	785	657	13,298	3,513	18,253
	Row Percent	4.3%	3.6%	72.9%	19.2%	100.0%
Total	Count	6,328	6062	58,759	17,032	88,181
	Row Percent	7.2%	6.9%	66.6%	19.3%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year

college preparatory curricula. The trend for general curricula parallels the business/commercial percentages in that there is a decrease from 1975 to 1985 and a slight increase in 1995.

The college preparatory curricula are selected for comparison between male and female students across the time periods since only 11.8% of the African American and 12.2% of the Caucasian American students indicated an interest in less than baccalaureate education. Table 5 describing African American students indicates that in the initial year, 1975, 51.1% of the males select college preparatory curricula compared *with* 45.0% of the females. Both groups increase slightly when comparing the 1975 and 1985 years. Both groups increase dramatically in their selection of the college preparatory curricula in 1995 with more female students (65.1%) than male students (62.1%) selecting this curricular option. A similar trend is identified in Table 6 describing the Caucasian American high school students. While more Caucasian high school students choose the college preparatory curricula than their African American counterparts the gap is closing as identified in data presented in Tables 5 and 6. The 1995 data show the difference between African and Caucasian males selecting the college preparatory curricula at 10.0% and 7.8% for females.

Research Question Four

Has There Been a Change in How Well Students Prepare Themselves?

Three separate variables were investigated to answer research question four. These were the students' high school grade point average (GPA) as an indication of ability and diligence, the number of years of high school science taken in view of its importance to a health career and last, the composite score on the ACT assessment as an overall measure of academic achievement.

Tables 7 and 8 describe the self-reported GPA of African and Caucasian Americans respectively. We have classified a GPA of .5 to 1.9 as “less than C”, the range of 2.0 to 2.9 as “C”, the range from 3.0 to 3.4 as “B- to B”, and 3.5 to 4.0 as “B+ to A”. For MAAHSS, there is a drop in the percentage of “less than C” GPA category over time, stability in the “C range, and increase in the “B- to B” and “B+ to A” categories. When comparing the 1975 and 1995 time periods for FAAHSS there is a drop in the less than “B” categories and a similar increase in the “B- to B” and “B+ to A” categories. FAAHSS show a much higher percentage increase in the “B+ to A” category than MAAHSS.

Table 8 describes the self-reported GPA of Caucasian American high school students. The patterns are similar to those of African American high school students. Both male and female students show a decline in the lower self-reported percentage assigned to the lower GPA categories and increase in the upper categories. While MCAHSS show a higher percentage of increase in the top category as well as a higher percentage than their MAAHSS counterparts, FCAHSS show both the largest increase and the largest percentage assigned to the top category. Regardless of the student group the trend is toward a higher self-reported GPA over the 1975 to 1995 time period.

Tables 9 and 10 present the years of science taken by African and Caucasian American high school students. This variable was chosen in view of its importance to health careers. Table 9 shows that both male and female African American high school students are taking more years of science in 1995 than 1975. More female students take 2.5 to 3 years of high school science than male while approximately an equal percentage take 3.5 to 4 years of science. Better than

Table 7

African American High School Students by High School GPA for the
Years 1975, 1985, 1995*

Year		G.P.A. Recorded				Total
		0.5- 1.9	2.0-2.9	3.0-3.4	3.5-4.0	
1975 Males	Count	175	527	154	61	917
	Row Percent	19.1%	57.5%	16.8%	6.7%	100.0%
1975 Females	Count	226	789	429	132	1,576
	Row Percent	14.3%	50.1%	27.2%	8.4%	100.0%
1985 Males	Count	240	720	209	86	1,255
	Row Percent	19.1%	57.4%	16.7%	6.9%	100.0%
1985 Females	Count	269	995	483	195	1,942
	Row Percent	13.9%	51.2%	24.9%	10.070	100.070
1995 Males	Count	256	1,013	374	132	1,775
	Row Percent	14.4%	57.1%	21.1%	7.4%	100.0%
1995 Females	Count	182	1,284	804	429	2,699
	Row Percent	6.7%	47.6%	29.8%	15.9%	100.070
Total	count	1,348	5,328	2,453	1,035	10,164
	Row Percent	13.3%	52.4%	24.1%	10.2%	100.070

*Numbers represent a 5% national sample of ACT test takers for each year

Table 8

Caucasian American High School Students by High School GPA for the
Years 1975, 1985, 1995

Year		G.P.A. Recorded				Total
		0.5- 1.9	2.0-2.9	3.0-3.4	3.5-4.0	
1975 Males	Count	1,066	5,442	3,443	1,911	11,862
	Row Percent	9.0%	45.9%	29.0%	16.1%	100.070
1975 Females	Count	717	4,925	4,898	3,232	13,772
	Row Percent	5.2%	35.8%	35.6%	23.5%	100.070
1985 Males	Count	1,204	6,295	3,955	2,576	14,030
	Row Percent	8.6%	44.9%	28.2%	18.4%	100.0%
1985 Females	Count	845	5,951	5,525	4,174	16,495
	Row Percent	5.1%	36.1%	33.5%	25.3%	100.0%
1995 Males	Count	758	5,204	4,265	3,734	13,961
	Row Percent	5.4%	37.3%	30.5%	26.7%	100.0%
1995 Females	Count	534	5,216	5,976	6,515	18,241
	Row Percent	2.9%	28.6%	32.8%	35.7%	100.070
Total	count	5,124	33,033	28,062	22,142	88,361
	Row Percent	5.8%	37.4%	31.8%	25.1%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year

71% of the males and 76.4% of the female African American high school students took more than two years of science in 1995. This is a dramatic increase from 1975 where 40.3% of the African American males and 30.0% of the African American female high school students took more than two years of science. Female students have made the most dramatic gain and exceed males in the self-reported percentage taking more than two years of science.

Table 10 identifies a similar pattern for increased years of science taken by Caucasian American high school students. While the percentage of females taking more than two years of science in 1995 (82.2%) is slightly higher than males (81.7%), a higher percentage of male students (47.3%) take 3.5 to 4 years of science than female students (43.5%). As in the case of African American high school students, female Caucasian American high school students made a larger gain from 1975 to 1995 than male students and slightly exceed males in the percentage taking more than two years of science.

In reviewing data from Tables 9 and 10 for students taking more than two years of science, between the 1975 and 1995 time period, the highest growth is for FAAHSS (46.4%). Even when yielding to the initially high percentage of years of science taken by MCAHSS, we note the impressive change from 1975 to 1995 for both FCAHSS (42.1%) and MAAHSS (31.1%).

The composite ACT score is the last variable described in responding to research question four, changes in student preparation. The reader is reminded that the means describe only those students interested in health careers and are not presented as composite ACT scores reflecting all ACT test takers. Tables 11 and 12 present data describing the scores of African

Table 9

African American High School Students by Number of Years of Science Taken
for the Years 1975.1985. 1995*

Year		Science Years Taken				Total
		0.5-1 yr	1.5-2 yrs	2.5-3 yrs	3.5 & Higher	
1975 Males	Count	201	325	231	124	881
	Row Percent	22.8%	36.9%	26.2%	14.1%	100.0%
1975 Females	Count	480	576	308	145	1,509
	Row Percent	31.8%	38.2%	20.4%	9.6%	100.0%
1985 Males	Count	272	370	306	251	1,199
	Row Percent	22.7%	30.9%	25.5%	20.9%	100.0%
1985 Females	Count	441	631	502	315	1,889
	Row Percent	23.3%	33.4%	26.6%	16.7%	100.0%
1995 Males	Count	129	371	617	635	1,752
	Row Percent	7.4%	21.2%	35.2%	36.2%	100.0%
1995 Females	Count	139	493	1,078	961	2,671
	Row Percent	5.2%	18.5%	40.4%	36.0%	100.0%
Total	Count	1,662	2,766	3,042	2,431	9,901
	Row Percent	16.8%	27.9%	30.7%	24.6%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year

Table 10

Caucasian American High School Students by Number of Years of Science Taken
for the Years 1975, 1985, 1995*

Year		Science Years Taken				Total
		0.5-1 yr	1.5-2 yrs	2.5-3 yrs	3.5 & Higher	
1975 Males	Count	1,649	3,476	3,197	3,355	11,677
	Row Percent	14.1%	29.8%	27.4%	28.7%	100.0%
1975 Females	Count	2,939	5,172	3,306	2,133	13,550
	Row Percent	21.7%	38.2%	24.4%	15.7%	100.0%
1985 Males	Count	1,516	3,707	3,966	4,605	13,794
	Row Percent	11.0%	26.9%	28.8%	33.4%	100.0%
1985 Females	Count	2,230	5,193	4,753	4,115	16,291
	Row Percent	13.7%	31.9%	29.2%	25.3%	100.0%
1995 Males	Count	425	2,117	4,780	6,561	13,883
	Row Percent	3.1%	15.2%	34.4%	47.3%	100.0%
1995 Females	Count	481	2,752	7,032	7,917	18,182
	Row Percent	2.6%	15.1%	38.7%	43.5%	100.0%
Total	count	9,240	22,417	27,034	28,686	87,377
	Row Percent	10.6%	25.7%	30.9%	32.8%	100.0%

*Numbers represent a 5% national sample of ACT test takers for each year

American and Caucasian American high school students.

Female African American high school students, interested in health careers, show a steady growth in their ACT composite score; 15.49 in 1975, 15.64 in 1985 and 17.31 in 1995.

African American male high school students show a slight decline from 16.11 in 1975 to 16.09 in 1985, before increasing to 16.93 in 1995. Table 12 shows that the mean ACT composite score for

Caucasian American high school students steadily declines from 22.15 in 1975 to 21.62 in 1995.

Female Caucasian high school students decline slightly from 20.84 in 1975 to 20.70 in 1985 and increase to 21.38 in 1995. We again note that these means reflect the scores of students

Table 11

ACT Composite Score for African American High School Students Interested in Health Careers for the Years 1975,1985,1995

Year	N	Mean	Std. Deviation	Std. Error
1975 Males	932	16.11	4.30	.14
1975 Females	1,595	15.49	3.50	8.76E-02
1985 Males	1,284	16.09	4.36	.12
1985 Females	1,981	15.64	3.81	8.55E-02
1995 Males	1,816	16.93	3.79	8.89E-02
1995 Females	2,730	17.31	3.60	6.89E-02
Total	10,338	16.38	3.89	3.83E-02

*Numbers represent a 5% national sample of ACT test takers for each year

interested in health careers and not all ACT test takers.

Tables 11 and 12 show a steady decline in the mean ACT composite score for Caucasian males, a decline in the mean ACT composite score from 1975 to 1985 for African American males and Caucasian females and a steady increase in the scores of African American females. With the exception of male Caucasian high school students, scores are higher in 1995 than in 1975. These data were limited to the high school students indicating an interest in health careers.

Table 12

ACT Composite Score for Caucasian American High School Students Interested in Health Careers for the Years 1975.1985.1995

Year	N	Mean	Std. Deviation	Std. Error
1975 Males	11,970	22.15	4.62	4.22E-02
1975 Females	13,925	20.84	4.34	3.68E-02
1985 Males	14,194	21.90	4.83	4.05E-02
1985 Females	16,734	20.70	4.42	3.42E-02
1995 Males	14,104	21.62	4.60	3.88E-02
1995 Females	18,415	21.38	4.27	3.14E-02
Total	89,342	21.39	4.53	1.52E-02

*Numbers represent a 5% national sample of ACT test takers for each year

Conclusions and Recommendations

Our conclusions and recommendations are organized and presented in response to our

original research questions and the related literature. The conclusion to each question summarizes our position supported by our data and interpreted in view of the presented literature. Based on these conclusions and the related literature, we present recommendations of use to teachers, counselors, administrators, and policy makers. As evidenced by our data and analysis, we concentrate on eleventh and twelfth grade ACT test takers. This choice is valid in that this test is one of the largest college admission tests and as such provides a well representative sample. The aspirations of high school students are an overwhelming predictor (.74) of their college major (Wilson & **Boldizar**, 1990). Further it represents vocational decision makers intimately involved with the opportunities afforded with developmental life stages (**Ansell & Hansen**, 197 1). **Ginzberg** et al. (1951) identify ages seventeen and eighteen as the final stage of realistic choice making. Our data are also used to address the concerns of **Dillard** (1980) which noted insufficient attention to differences between African and Caucasian American high school students. We must note that the choice of our database limits generalizing to less than baccalaureate programs since most test takers aspire to the baccalaureate and beyond and that the ACT is not typically required by community colleges and **vocational-technical** schools.

1. There is a slight to moderate increase in the interest in health careers when comparing 1975 to 1995. We note the decrease from 1975 to 1985 and differences in interest based on both gender and race. Least interest as portrayed by percentage of change is for Caucasian females followed by Caucasian males in turn followed by African American males. The largest percentage of growth is for African American high school students. The data tend to support the contention of **Dillard** (1980) for female students in that there was a dramatic growth in interest

for African American female high school students compared to their Caucasian counterparts. Male high school students, however, showed only a slight increase for both African American and Caucasian students.

2. We conclude that the changes in aspirations over the selected time period are similar for African American and Caucasian male and female high school students. There is a pronounced decline in interest in less than baccalaureate programs and a slight decline in baccalaureate aspiration. All students show increased interest in graduate and professional programs. For the year 1995, male African American students are more interested in professional degrees than their Caucasian counterparts, while Caucasian males are more interested in graduate degrees. While both female African American and Caucasian high school students show greater growth in interest in graduate and professional degrees than male students when comparing 1975 to 1995, the largest percentage of growth is for African American females. Our conclusions support previous research of Cosby (1971), Kelly and Wingrove (1975), and McNair and Brown (1983). Our data certainly do not portray African American high school students as having less aspiration than Caucasian students. Overall the differences that exist appear to be based on gender. While interest in graduate programs is similar, both Caucasian and African American female students have a higher interest in professional degrees. Our findings while supportive of the research of Dawkins (1981) and the review of Jepsen (1995) require some interpretation. The Dawkins' study suggests female students pursue those occupations traditionally identified for women and Jepsen notes those requiring less mathematics. Our data show interest in graduate and professional degrees over the

time period which we feel provide a more contemporary as well as historical context. We also note that this shift is away from those degrees, hence occupations identified for women, and that health careers graduate programs require a background in biology, chemistry and physics, therefore a background in mathematics.

3. More students are choosing the college preparatory program. In concert with their level of aspiration, the African American and Caucasian ACT test takers comprise a trend toward the college preparatory curriculum from 1975 to 1995. This is true for both male and female students but dramatically true for female students. We acknowledge this trend suggested in our data and also its limitation in that ACT test takers represent traditional college bound students.

4. We conclude that students are better prepared in 1995 than 1975 based on the variables of grade point average (GPA), number of years of science taken, and their composite ACT scores. Female high school students, both African and Caucasian, show the largest growth in the GPA categories represented by "B- to B" and "B+ to A". We note a similar trend of better preparation in the number of years of science taken when comparing the 1975 to 1995 time periods. Greatest growth in the number of years of science taken is evidenced by African American female high school students. The data are similar for the ACT composite scores, with the exception of Caucasian male high school students whose scores show a consistent decline.

In summary, we conclude that there is a higher degree of interest in health careers expressed by the African and Caucasian American high school students represented in this study for the time periods 1975, 1985, and 1995. They have higher educational aspirations and more pursue college preparatory curricula as their high school program. With the exception of the

mean composite ACT score for male Caucasian high school students, the study sample is better prepared in 1995 than in 1975 as evidenced by high school (GPA), years of science taken, and the ACT composite score.

Recommendations

We recommend that high school students continue to explore and choose health careers. We suggest this interest and pursuance in spite of recent concerns directed to decreased health care personnel needs as a result of health care costs and insurance coverage. The health care industry continues to be a large segment of gross domestic product and will continue to provide employment opportunities at various occupational levels. We suggest continued diligence in assisting students to explore careers from the vast array of health careers available and caution against early prescriptive choice.

We should continue to encourage students to pursue careers in their areas of interest and to expand their career horizon. Based on our data, we should at least comply with the professed levels of aspiration and celebrate and acknowledge the strides female students have made in aspiring to graduate and professional programs.

We recommend that parents, teachers, counselors, in fact all individuals and avenues with an opportunity to influence young students encourage them to pursue post high school formal education. We note that our sample reflects traditional college bound high school students and the trend presented toward baccalaureate and post-baccalaureate education, while welcome, is not surprising. We wish to include in our recommendations those students who may be considering a community college or technical education. Given the breadth of opportunities, high

school students with health careers interests should be encouraged to pursue employment and commensurate education. Efforts and legislation, such as School-to-Work and Tech-Prep should assist in the career decision-making and preparation of high school students.

Career choice should be based on the interests and talents of the individual. While gainful employment is an economic necessity for most of us, the vagaries of the job market should not be the sole determinant. High school programs involving job shadowing, student counseling, and interests should be **strengthened**. Purveyors of such programs need to be mindful of ethnic and gender stereotyping. Opportunities of the past need to be stressed but educational and employment constraints should not be inadvertently used to limit the career aspirations of high school students. The gains in aspiration and academic preparation of minorities and women, as presented by our sample, need to be cultivated.

Indications for Future Research

We suggest that future research explore the following

1. What careers are the most academically talented high school students pursuing? Our current analysis shows that those students who choose health careers are more academically talented than they have been in the past, but how do they compare to the pool of ACT test takers?
2. Students are being advised to take more mathematics and science. Has this led to a greater interest in health careers?
3. What is the relationship between career aspiration, educational aspiration, preparation and achievement?

4. Other national data bases should be investigated to explore the career and educational aspirations of a more representative sample of high school students.

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