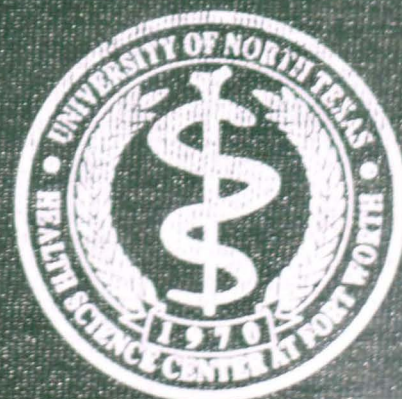




W 4.5 A663c 2003
Aravind, Raven.
A comparative breast cancer
study

UNTHSC - FW



M036PL

LEWIS LIBRARY
UNT Health Science Center
3500 Camp Bowie Blvd.
Ft. Worth, Texas 76107-2699

Aravind, Raven, A Comparative Breast Cancer Study: Stage & Mortality in El Paso County's non-Hispanic white and Hispanic population, 1990-2000. Master of Public Health (Epidemiology), May 2003, 17pp., 1 table, 3 figures, bibliography, 43 titles.

This retrospective breast cancer study compares the stage of breast cancer diagnosis and mortality between Hispanic (HS) and non-Hispanic white women (NHW). The study includes 874 Hispanic women and 802 non-Hispanic white women diagnosed with breast cancer between January 1990 and December 2000 at the El Paso Cancer Treatment Center, El Paso Texas. The objectives of the study were: 1) to determine if this population of Hispanic women is being diagnosed at a later stage of breast cancer 2) to ascertain the relative survival of non-Hispanic white and Hispanic women 3) to verify if Hispanic women were being diagnosed at a younger age; and 4) to examine tumor size at diagnosis to determine if there is a need for more assertive screening measures in this population of women.

A COMPARATIVE BREAST CANCER STUDY: STAGE & MORTALITY IN

EL PASO COUNTY'S NON-HISPANIC WHITE AND HISPANIC

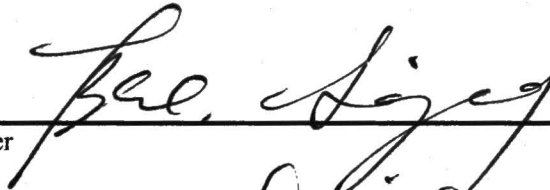
POPULATION, 1990-2000

Raven Aravind, B.F.A.

APPROVED:



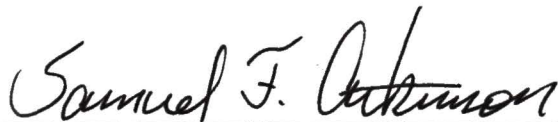
Major Professor



Committee Member



Committee Member



Department Chair



Dean, School of Public Health

A COMPARATIVE BREAST CANCER STUDY: STAGE & MORTALITY IN

EL PASO COUNTY'S NON-HISPANIC WHITE AND HISPANIC

POPULATION, 1990-2000

THESIS

Presented to the School of Public Health

University of North Texas
Health Science Center at Fort Worth

in Partial Fulfillment of the Requirements

for the Degree of

Master of Public Health

By

Raven Aravind, B.F.A

Fort Worth, Texas

May 2003

ACKNOWLEDGMENTS

I would like to extend my gratitude to the El Paso Cancer Treatment Center, El Paso Texas as well as Dr. Russell Hoverman, M.D., PhD and Deidre McMillan, CTR for granting and providing the opportunity to use TOPA cancer registry databases for this study.

TABLE OF CONTENTS

	Page
LIST OF ILLUSTRATIONS	iv
Title Page	1
Abstract for Journal	2
Background	3
Methods	4
Results	6
Conclusion	7
References	10
Table of Descriptive Statistics	13

LIST OF ILLUSTRATIONS

	Page
Figure 1. Tumor Size	14
Figure 2. Results of Kaplan Meier	15
Figure 3. Relative Survival Rates	16

Title Page

A Comparative Breast Cancer Study: Stage & Mortality in El Paso County's non-Hispanic White and Hispanic population, 1990-2000

Raven Aravind, MPH

Department of Epidemiology, School of Public Health
University of North Texas Health Science Center
3500 Camp Bowie Boulevard
Fort Worth, Texas 76107

Sejong Bae Ph.D.

Department of Biostatistics, School of Public Health
University of North Texas Health Science Center
3500 Camp Bowie Boulevard
Fort Worth, Texas 76107

Raghubir Sandhu MBBS, DTM&H, DPH(U.K.), DrPH
Department of Epidemiology, School of Public Health
University of North Texas Health Science Center
3500 Camp Bowie Boulevard
Fort Worth, Texas 76107

Gregg Wilkinson Ph.D.

Department of Epidemiology, School of Public Health
University of North Texas Health Science Center
3500 Camp Bowie Boulevard
Fort Worth, Texas 76107

Address for Reprints or correspondence:

Raven Aravind, MPH*

12221 Merit Drive, Suite 500

Dallas, Texas 75251

Phone: 972-490-2906 Fax: 972-386-0293

E-mail: raven.aravind@usoncology.com

Abstract for Journal

Background

Prior studies have demonstrated lower breast cancer incidence and younger age at diagnosis among Hispanic women when compared to non-Hispanic white women. However, comparative results from stage at diagnosis and mortality between these two populations of women remain inconsistent and requires further clarification.

Methods

Cancer Registry data maintained at the El Paso Cancer Treatment Center, El Paso, Texas was utilized to examine 802 non-Hispanic white (NHW) and 874 Hispanic (HS) women with a breast cancer diagnosis between January 1990 and December 2000. We compared age at diagnosis, tumor size, stage at diagnosis, and survival between our study subjects.

Results

Mean age difference was 6 years younger for Hispanic women (53 vs. 59 $p < 0.0001$). Hispanic women presented with larger tumors (56% vs. 41% $p < 0.0001$), had more lymph node positive disease (58% vs. 42% $p < 0.001$), and at later stage of disease at diagnosis (49% versus 33% $\chi^2 = 57.71$ $p < 0.005$) than non-Hispanic whites. The Kaplan Meier product limit conveyed a significant overall survival advantage for non-Hispanic white women (Log rank $\chi^2 = 54.31$ $p < 0.001$) and was further supported by calculating the relative survival rate for each population of women.

Conclusion

Whether presenting at an advanced stage can be attributed to cultural and socioeconomic environment, or biological factors particular to Hispanic women remains to be seen. Our study indicated that Hispanic women presented, at a younger age, with larger tumors and lymph node metastasis, subsequently experiencing death more frequently as a result of their disease.

Key Words: Breast neoplasm, cancer staging, Hispanic women, prognosis, differential mortality

Background

Consensus in the medical literature supports both a lower incidence rate as well as a younger age at breast cancer diagnosis for Hispanic women (HS) when compared to non-Hispanic white women (NHW).¹⁻¹⁷ This difference in age at diagnosis for Hispanic women has commonly been attributed to the younger age distribution of Hispanics more so than age-specific risk. Breast cancer remains the most commonly diagnosed malignancy in both populations of women and is the most common cause of cancer mortality in Hispanic women and the second leading cause of cancer death in non-Hispanic white women.^{5,18}

Breast cancer studies that have sought to compare stage at diagnosis and mortality in non-Hispanic whites and Hispanic women have been few.¹⁹ In addition, major obstacles in providing meaningful data have been small sample size with regard to Hispanic women, breast cancer data collected over lengthy time intervals for Hispanic women, data obtained strictly from referral institutions, as well as Cancer Registry data that contains a significant proportion of unstaged breast cancer patients.

The objectives of our study were to evaluate age at diagnosis, stage of diagnosis and mortality from breast cancer in a predominantly Hispanic population of women to non-Hispanic whites as well as examine tumor size at diagnosis to determine if more assertive screening and educational measures in this population of women, are needed.

Methods

Data analysis for this retrospective breast cancer study was based on C/Net a Cancer Registry database containing 1,676 breast cancer cases maintained by the El Paso Cancer Treatment Center, El Paso Texas. Over the eleven-year study period 1990-2000 the El Paso Cancer Treatment Center reported 39.5% of Hispanic breast cancer cases and 47.3% of the non-Hispanic white breast cancer cases to the Texas Department of Health (TDH). This averaged result over the term of our study was obtained by comparing the yearly reported breast cancer cases to the TDH for El Paso County to the number of annually reported breast cancer cases at the El Paso Cancer Treatment Center. Between January 1990 and December 2000, 624 non-Hispanic white (NHW) and 686 Hispanic women (HS) with a pathologically confirmed diagnosis of breast cancer were identified according to the International Classification of Diseases for Oncology (ICD-O, 2nd ed.) topography codes C50.0 through C50.9 (excluding histology codes 9590-9970) and were entered into the study. Race was categorized as either non-Hispanic white or Hispanic as documented in the patient's medical record.

Age at diagnosis was determined from either the History & Physical in the patient's medical chart or from a pathology report. Age was categorized to approximate pre, peri, and post menopausal groups and defined by: less than 45, 45-54, and greater than 54 for all analyses.

Study subjects were staged according to the American Joint Commission on Cancer (AJCC) staging criteria. Stage 0 is in situ disease with no invasion of the basement membrane. Stage 1 refers to localized disease that is invasive but confined within the breast. Stage 2A refers to tumors that are no larger than 2 cm but have spread to the ipsilateral axillary lymph nodes, or tumors that are between 2 and 5cm that have not spread to the ipsilateral axillary lymph nodes. Stage 2B refers to tumors that are between 2 and 5 cm that have spread to the ipsilateral axillary lymph nodes, or the tumor is >5cm but has not spread to the ipsilateral axillary lymph nodes. Stage 3A refers to a tumor <5cm but ipsilateral axillary lymph node(s) are matted or fixed to other structures, or tumor >5cm and spread to the ipsilateral axillary lymph nodes. Stage 3B refers to tumors that have become regional by direct extension in that tumor can invade chest wall, ribs, muscles, and skin, or tumor metastasis to the ipsilateral internal mammary lymph node(s).

Stage 4 refers to tumor spread to distant sites throughout body, or spread to ipsilateral supraclavicular lymph node(s).

Although tumor size is generally reflected in a patient's stage we further examined this outcome variable by an averaged age-specific frequency among 511 non-Hispanic whites and 533 Hispanic women. Because tumors larger than 2cm are often detected by physical symptoms, have higher rates of recurrence with decreased survival and fewer treatment options we wanted to know what proportion of our study subjects were presenting with tumors larger than 2cm³⁴⁻³⁸.

Chi-square was used to test for differences in the stage of diagnosis between non-Hispanic white and Hispanic study subjects.

Age-specific frequencies were used in lieu of an age-adjusted rate for all analysis. A t-test was used to determine mean age difference between non-Hispanic whites and Hispanic women.

Observed survival curves were calculated using the Kaplan-Meier product limit method. Log rank statistics were used to test for significance. Analysis for mortality comprised 587 non-Hispanic whites and 605 Hispanic study subjects. Because 65% of our non-Hispanic white study subjects were diagnosed with breast cancer at or above age 54 we also wanted to consider how mortality from other causes could possibly affect our data. Therefore, we also calculated 5-year relative survival rates for our patients. Two-sided tests were used for all statistical measures.

Median follow-up for non-Hispanic whites was 51 months and 46 months for Hispanics study subjects.

Results

Of the 1,676 breast cancer patients 624 non-Hispanic whites and 686 Hispanic women were eligible for our study. Stage of diagnosis was missing for 155 non-Hispanic white study subjects and 153 Hispanic study subjects. We were unable to obtain race for 44 study subjects. Date of birth was missing for 1 study subject with the remaining 13 not meeting the histological requirement for our study.

Mean age at diagnosis for non-Hispanic whites and Hispanics was 59 versus 53 (t-test $p < 0.0001$). Standard deviation 13.25 and 13.30 respectively. Table 1 supports prior findings of a younger age of breast cancer diagnosis for Hispanic women. Sixty-five percent of our non-Hispanic white population was over the age of 54 versus 45% of Hispanic women ($p < 0.001$)^{4,13,14}. Again this is felt to be reflective of the age differential in the population more so than age-specific risk.

Stage at diagnosis (Table 1) proportionately indicates that Hispanic women presented at a later stage of disease for stages IIB, IIIA, IIIB, and IV. Fifty-eight percent of our non-Hispanic white population was diagnosed prior to lymph node metastasis whereas only forty-two percent of Hispanic were ($p < 0.0001$). Chi-square analysis of stage at diagnosis demonstrated a significant finding and supported our assertion that Hispanic women were presenting at a later stage of breast cancer ($\chi^2 = 57.71$ $p < 0.005$).

Figure 1 displays a slight decrease in tumor size detection with advancing age for both populations of women. Our trend line reveals that Hispanic women were consistently diagnosed with larger tumors. Table 1 shows that 59% of non-Hispanic white women had tumor detection at 2.0cm or less while only 44% of Hispanic women were diagnosed in this range.

Our Kaplan Meier observed survival curve confirms a survival advantage for non-Hispanic white women (Figure 2) (Log rank $\chi^2 = 54.31$ $p < 0.001$) which was further supported by calculating a relative survival curve (Figure 3).

Conclusion

Analysis confirmed Hispanic women when compared to non-Hispanic white women present at a younger age, with larger tumors, and at a later stage of breast cancer. The interpretation of our mortality data also demonstrated a survival advantage for non-Hispanic white women. Indirectly our work also supported prior findings of lower incidence of breast cancer among Hispanic women in El Paso County.

Prior research has demonstrated that minority women have a tendency to present at later stages of breast cancer when compared to non-Hispanic white women ^{4,24-31}. In reviewing the medical literature we did not find any comparative study between non-Hispanic whites and minority women that suggested otherwise. We found non-Hispanic white women being diagnosed at stage 0 and 1 (localized disease) and Hispanic women having a greater tendency to present at stage 2 (regional disease), or higher.

Factors such as cultural and educational differences, socioeconomic status, younger age for Hispanic women, tumor biology, hormonal regulation, and to a lesser extent dietary fat intake have been cited as the major reasons in explaining disparities in staging diagnosis ^{13,14,31,43}. Essentially, what remains unclear is the extent to which these factors impact breast cancer detection, patient care, and disease outcome.

The Breast Cancer Demonstration Project found that health-seeking behavior varied by ethnic status, income, and education ³². Conversely, Weis et al. and Vernon et al. determined that even when socioeconomic status remained equal between minority women there were still large disparities in breast cancer mortality. Because of these differing views increased understanding of the psychology behind delays in seeking diagnosis and treatment becomes paramount when studies continue to show a correlation between tumor size and detection. ^{23,31,32} Although we did not examine mammography use among our patients our data hinted at earlier detection through screening mammography for non-Hispanic white women in that there was a perceptible and consistent drop in tumor size detection beginning at age 40.

Furthermore, tumor size at detection for Hispanic women remained consistently higher regardless of age (Figure 1). Because screening mammograms can detect tumors smaller than 1cm this clearly implies the need for more effective educational and breast cancer screening measures for women in this area²³.

Additionally, the age differential between non-Hispanic whites and Hispanics may also hamper early breast cancer detection in which women less than 50 years old are less likely to have had a mammogram^{31,40} as well as less sensitive to breast cancer detection⁴¹.

Ethnic differences may be modified through biological factors, but present tumor marker studies we reviewed were not clinically instructive. Daly et al. and Elledge et al. found Hispanic women to have more estrogen receptor (ER) negative tumors which are generally associated with a worse prognosis. Weiss et al. found no relation between receptor status and ethnicity although her sample size for Hispanic women was small⁴⁹. In their multivariable predictive model Gann et al. found that ER negative tumors were less likely to be lymph node positive. Thus far, all studies we reviewed proportionately had Hispanic women presenting with more lymph node metastasis^{4,13,24}. Their model also implied that lymph node metastasis is associated with younger age, and belonging to a non-white ethnicity more so than receptor status. This finding is relevant in that axillary lymph status at diagnosis has been found to be the single best predictor in long-term survival²⁰⁻²².

Another obstacle that remains in accessing the potential for tumor marker analysis by ethnicity is the need for tumor studies to encompass a wider as well as larger distribution of minority women. In our review of tumor marker studies from referral institutions we frequently noted the small sample size for minority women as well the potential for selecting more aggressive breast cancer cases. We found that data for comparative tumor marker studies were generally drawn from States that have large Hispanic populations, but Hispanic women are disproportionately under represented in these studies.

We confirmed with State epidemiologists that mortality data could be reported as observed. This substantiated our concern that mortality from breast cancer could be further masked in Hispanic women because of the age differential between the two populations of women. It should be made clear that age adjustment was not the appropriate response for our data because regardless of the patient's age the issue is the uncertainty with regard to the patient's cause of expiration. However, because of this difference in the age distribution it is more likely that younger Hispanic women died from their breast cancer disease whereas older non-Hispanic white women have an increased potential for dying from age related comorbidities. This was our reasoning in constructing a 5-year life expectancy curve for both patient populations. (Figure 3) This graph clearly illustrates that the burden of cancer mortality falls more heavily on Hispanic women. We did look at other statistical measures for adjusting our mortality data. However, the results we obtained proved inconsistent and consequently were not reported.

Our biggest hurdle in providing accurate information regarding comparative stage of diagnosis for Hispanic and non-Hispanic white women may be the patient population sampled for this study. We addressed this issue by obtaining the State of Texas breast cancer incidence data for El Paso County in which they had complete reporting for breast cancer cases.

We are also regretful in that we were unable to collect treatment or tumor marker information that may have provided us with greater insight into staging and mortality between Hispanic and non-Hispanic white women. Nonetheless, the objectives of our study have been met and we intend to pursue further means in educating Hispanic families in the area concerning the need for screening mammograms, early detection, and breast cancer treatment once a diagnosis has been made.

References

- (1) Miller A. Breast cancer. *Cancer* 1981;47:1109-1113.
- (2) Menck H, Henderson BE, Pike MC, Mack T, Martin SP, SooHoo J. Cancer incidence in the Mexican-American. *J Natl Cancer Inst* 1975;55:531-36.
- (3) Nemoto T, Tominaga T, Chamberlain A, et al. Differences in breast cancer between Japan and the united states. *J Natl Cancer Inst* 1977; 58:193-97.
- (4) Daly M, Clark G, McGuire W. Breast cancer prognosis in a mixed Caucasian-Hispanic population. *J Natl Cancer Inst* 1985; 74 (Suppl 4): 753-57.
- (5) Trapido EJ, Burciaga-Valdez R, Obeso JL, Strickman-Stein N, Rotget A, Perez-Stable EJ. Epidemiology of cancer among Hispanics in the United States. *Monogr Natl Cancer Inst* 1995;18:17-28.
- (6) Frost F, Tollestrup K, Hunt WC, Gilliland F, Key CR, Urbina CE. Breast cancer survival among New Mexico Hispanic, American Indian, and non-Hispanic White women (1973-1992). *Cancer Epidemiology, Biomarkers and Prevention* 1996; 5:861-66.
- (7) Richardson JL, Langholz B, Bernstein L, Burciaga C, Danley K, Ross RK. Stage and delay in breast cancer diagnosis by race, socioeconomic status, age, and year. *Br J Cancer* 1992;65: 922-26.
- (8) Wiggins CL, Becker TM, Key CR, Samet JM. Cancer mortality among New Mexico's Hispanics, American Indians, and non-Hispanic whites, 1958-1987. *J Natl Cancer Inst* 1993;85: 1670-78.
- (9) Saunders DL. Differences in the timeliness of diagnosis, breast and cervical cancer, San Francisco 1974-85. *Am J Public Health* 1989;79: 69-70.
- (10) Farley TA, Flannery BS. Late-stage diagnosis of breast cancer in women of lower socioeconomic status: public health implications. *Am J Public Health* 1989;79:1508-12.
- (11) Samet JM, Hunt WC, Goodwin JS. Determinants of cancer stage: A population-based study of elderly New Mexicans. *Cancer* 1990;66:1302-07.
- (12) Eidson M, Becker TM, Wiggins CL, Key CR, Samet JM. Breast cancer among Hispanics, American Indians and non Hispanic whites in New Mexico. *Intl J Epidem* 1994;23:231-37.
- (13) Zaloznik AJ. Breast cancer stage at diagnosis: Caucasians versus Hispanics. *Breast Cancer Res Treat* 1997;42:121-24.
- (14) Bentley JR, Delfino R, Taylor T, Howe S, Anton-Culver H. Differences in breast cancer stage at diagnosis between non-Hispanic white and Hispanic populations, San Diego County 1988-1993. *Breast Cancer Res Treat* 1998;50:1-9.
- (15) Satariano WA, Albert S, Belle SH. Race, age and cancer incidence: A test of double jeopardy. *J Gerontol* 1982;37: 642-47.
- (16) Ries LAG, Kosary CL, Hankey BF, Miller BA, Harras A, Edwards BK. SEER Cancer Statistics Review, 1973-1994. Bethesda(MD): National Cancer Institute; NIH Pub.No.97-2789

- (17) Adams-Cameron M, Gilliland F, Hunt W, Key C. Trends in incidence and treatment for ductal carcinoma in situ in Hispanic, American Indian, and non-Hispanic White women in New Mexico, 1973-1994. *Cancer* 1999; 85 (5): 1084-90.
- (18) Miller BA, Kolonel LN, Bernstein L, et al. Racial/Ethnic Patterns of Cancer in the United States, 1988-1992. Bethesda, Md:National Cancer Institute; 1996.NIH publication 96-4101.
- (19) Bondy ML, Spitz MR, Halani S, Fueger JJ, Vogel VG. Low incidence of familial breast cancer among Hispanic women. *Cancer Causes Control* 1992; 3:377-82.
- (20) Ravdin PM,De Larentiis M, Vendely T, Clark GM. Prediction of axillary lymph node status in breast cancer patients by using prognostic indicators. *J Natl Cancer Inst.* 1994;86:1171-75.
- (21) Olivotto IA, Jackson JS, Mates D, et al. Prediction of axillary lymph node involvement of women with invasive breast carcinoma: a multivariate analysis. *Cancer* 1998; 83:948-55.
- (22) Gann P, Colilla S, Gapstur S, Winchester DJ, Winchester DP. Factors associated with axillary lymph node metastasis from breast carcinoma. *Cancer* 1999;86(8):1511-19.
- (23) Hedeem A, White E. Breast cancer size and stage in Hispanic American Women, by birthplace: 1992-1995. *Am J Public Health* 2001;91(1):122-24.
- (24) Elledge RM, Clark GM, Chamness GC, Osborne CK: Tumor biological factors and breast cancer prognosis among White, Hispanic, and Black women in the United States. *J Natl Cancer Inst* 1994;86:705-12.
- (25) Chen F, Trapido EJ, Davis K: Differences in stage at presentation of breast cancer and gynecological cancers among Whites, Blacks, and Hispanics. *Cancer* 1994;73:2838-42.
- (26) Saltzstein SK: Breast carcinoma in women in San Diego county 1976 and 1980 vs. 1988 and 1989. Masters Thesis, San Diego State University, 1992
- (27) Morrison AL. Screening in chronic disease. New York, NY: Oxford University Press Inc;1992
- (28) Mandelblatt J, Andrews H, Kerner J, et al: Determinants of late stage diagnosis of breast and cervical cancer: the impact of age, race, social class, and hospital type[published eratum appears in *Am J Public Health* 1991;81:980]. *Am J Public Health* 1991;81:646-49.
- (29) Natarajan N, Nemoto T, Mettlin C, et al: Race-related differences in breast cancer patients. Results of the 1982 national survey of breast cancer by the American College of Surgeons. *Cancer* 1985;56:1704-09.
- (30) Five year relative survival rates by primary site and racial/ethnic group, SEER Program, 1973-1981. Bethesda (MD): National Cancer Institute. Cancer among blacks and other minorities' statistical profiles. 1986 DHEW Publ. No.: (NCI) 86-278S
- (31) Vernon SW, Tilley BC, Neale AV, Steinfeldt L Ethnicity, survival, and delay in seeking treatment for symptoms of breast cancer. *Cancer* 1985;55:1563-71.
- (32) Baker L. Breast cancer detection demonstration project: Five-year summary report. *CA* 1982;32:194-225.

- (33) Hedeem, A, White E. Breast cancer size and stage in Hispanic American Woman, by birthplace:1992-1995. *Am J Public Health*.2001;91:122-25.
- (34) Carter CL, Allen C, Henson DE. Relation of tumor size, lymph node status, and survival in 24,740 breast cancer cases. *Cancer*. 1989;63:181-87.
- (35) Mansour EG, Ravdin PM, Dressler L. Prognostic factors in early breast carcinoma. *Cancer*. 1994;74(suppl):381-400.
- (36) Rosner D, Lane WW. Predicting recurrence in axillary-node negative breast cancer patients. *Breast Cancer Res Treat*. 1993;25:127-39.
- (37) Smart CR, Byrne C, Smith RA, et al. Twenty-year follow-up of the breast cancers diagnosed during the Breast Cancer Detection Demonstration Project. *CA Cancer J Clin*. 1997;47:134-49.
- (38) NIH Consensus Conference, Treatment of early-stage breast cancer. *JAMA*. 191;265:391-394.
- (39) Wood WC. Integration of risk factors to allow patient selection for adjuvant systemic therapy in lymph node-negative breast cancer patients. *World J Surg*. 1994;18:39-44.
- (40) Stein JA, Fox SA, Murata PJ. The influence of ethnicity, socioeconomic status, and psychological barriers on use of mammography. *J Health Soc Behav*. 1991;32:101-13.
- (41) Tortolero-Luna G, Globler GA, Villarreal R, Palos G, Linares A. Screening practices and knowledge, attitudes, and beliefs about cancer among Hispanic and non-Hispanic white women 35 years old or older in Nueces, County, Texas. *J Natl Cancer Inst Monogr*. 1995;18:49-56.
- (42) Hopkins RS, Hensley K. Breast Cancer in Florida Women: incidence and stage at diagnosis. *J. Florida M.A* 1993 July (80) No.7.
- (43) Weiss S, Tartter P, Ahmed S, Brower S, Brusco C, Bossolt K, et el. Ethnic differences in risk and prognostic factors for breast cancer. *Cancer* 1995; 76 (2):268-274.

Table 1. Descriptive Statistics by Race, Stage, & Tumor Size

Factor	Ethnic Group				P-Value
	White		Hispanic		
	Mean Age 59 SD (13.25)		Mean Age 53 SD (13.30)		
	n=624	(%)	n=686	(%)	
Age, Yr		100		100	
<45	87	14	206	30	
45-54	131	21	171	25	
>54	406	65	309	45	
					<0.001
	n=624	(%)	n=686	(%)	
Stage at Diagnosis		100		100	
Stage 0	44	7	26	4	
Stage I	237	38	149	22	
Stage IIA	140	22	175	25	
Stage IIB	88	14	143	21	
Stage IIIA	37	6	68	10	
Stage IIIB	35	6	53	8	
Stage IV	43	7	72	10	
					<0.001
	n=511	(%)	n=533	(%)	
Tumor Size, cm		100		100	
≤1.0	118	23	77	14	
1.1-2.0	181	35	155	29	
2.1-3.0	91	18	117	22	
3.1-5.0	79	16	120	23	
≥5.1	42	8	64	12	
					<0.001

Figure 1. Tumor Size

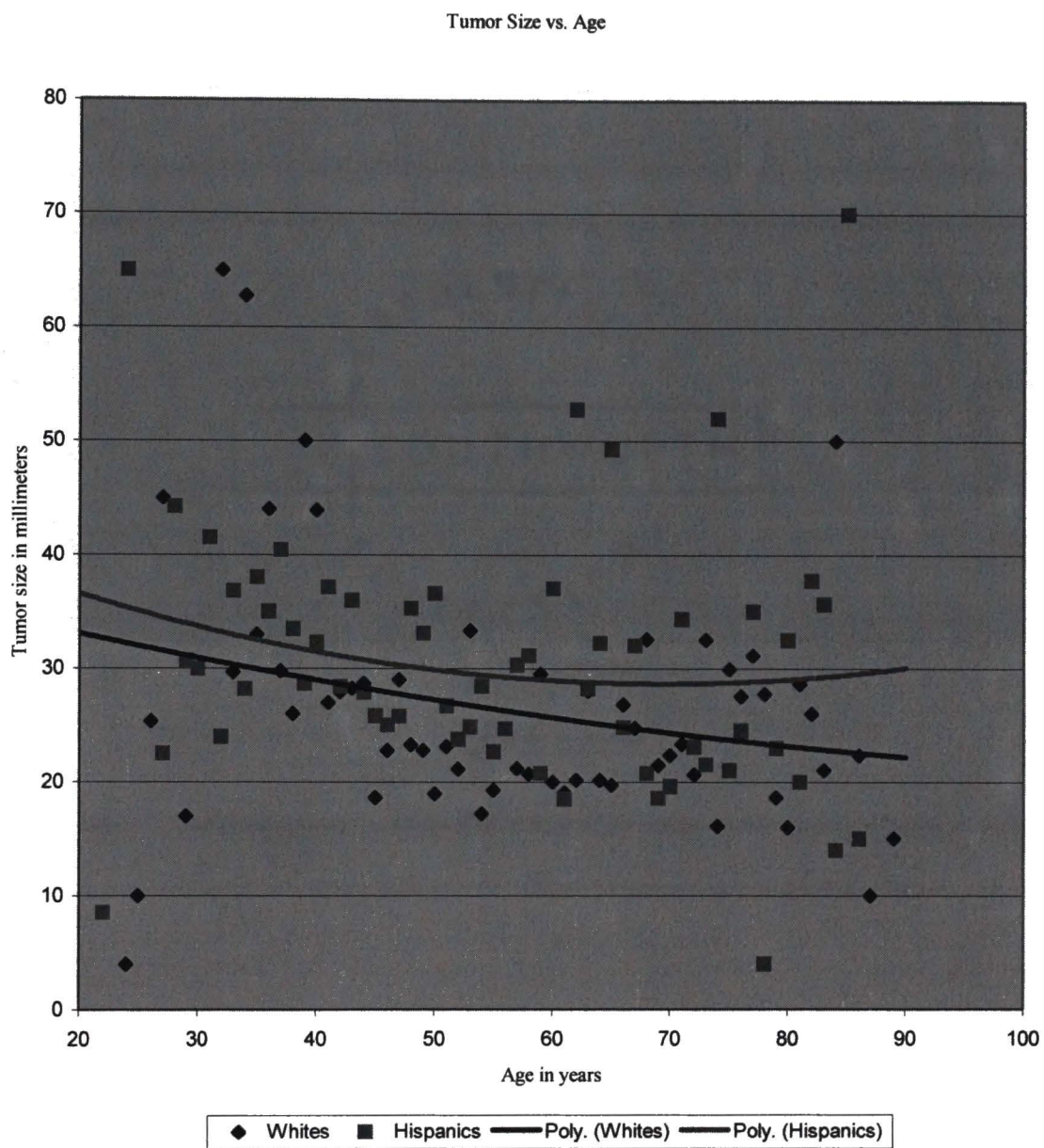


Figure 2. Results of Kaplan Meir

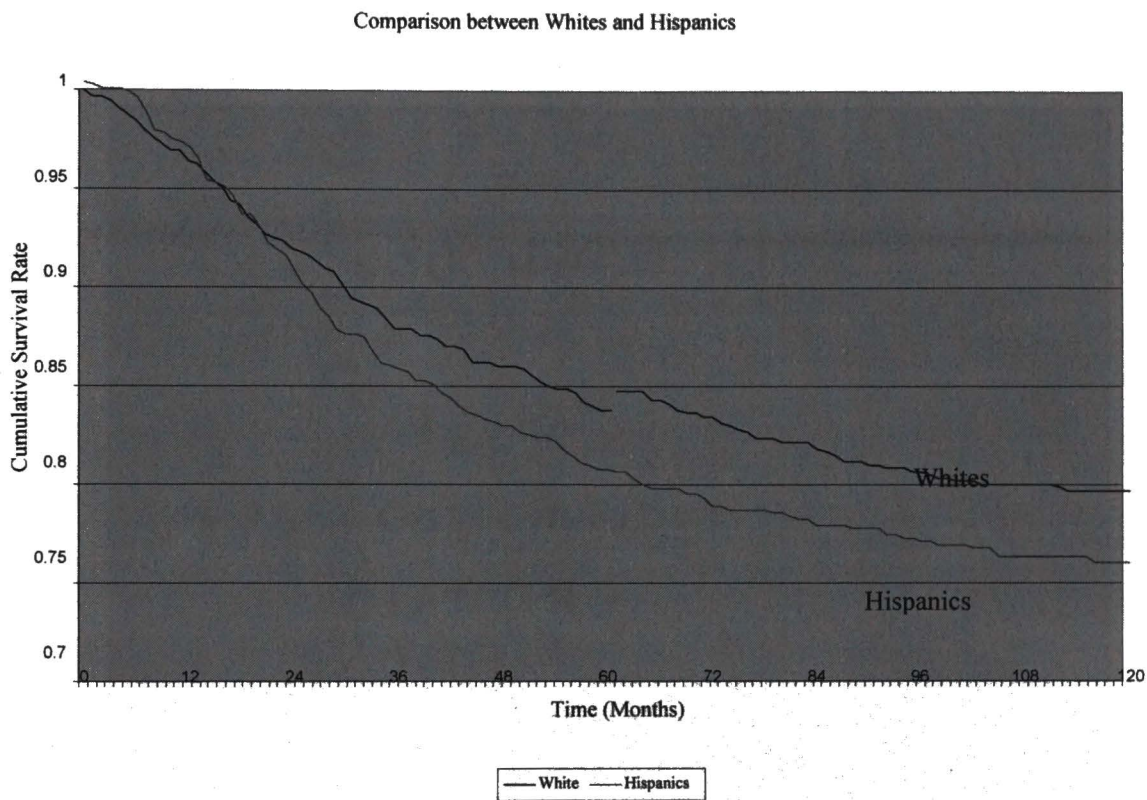
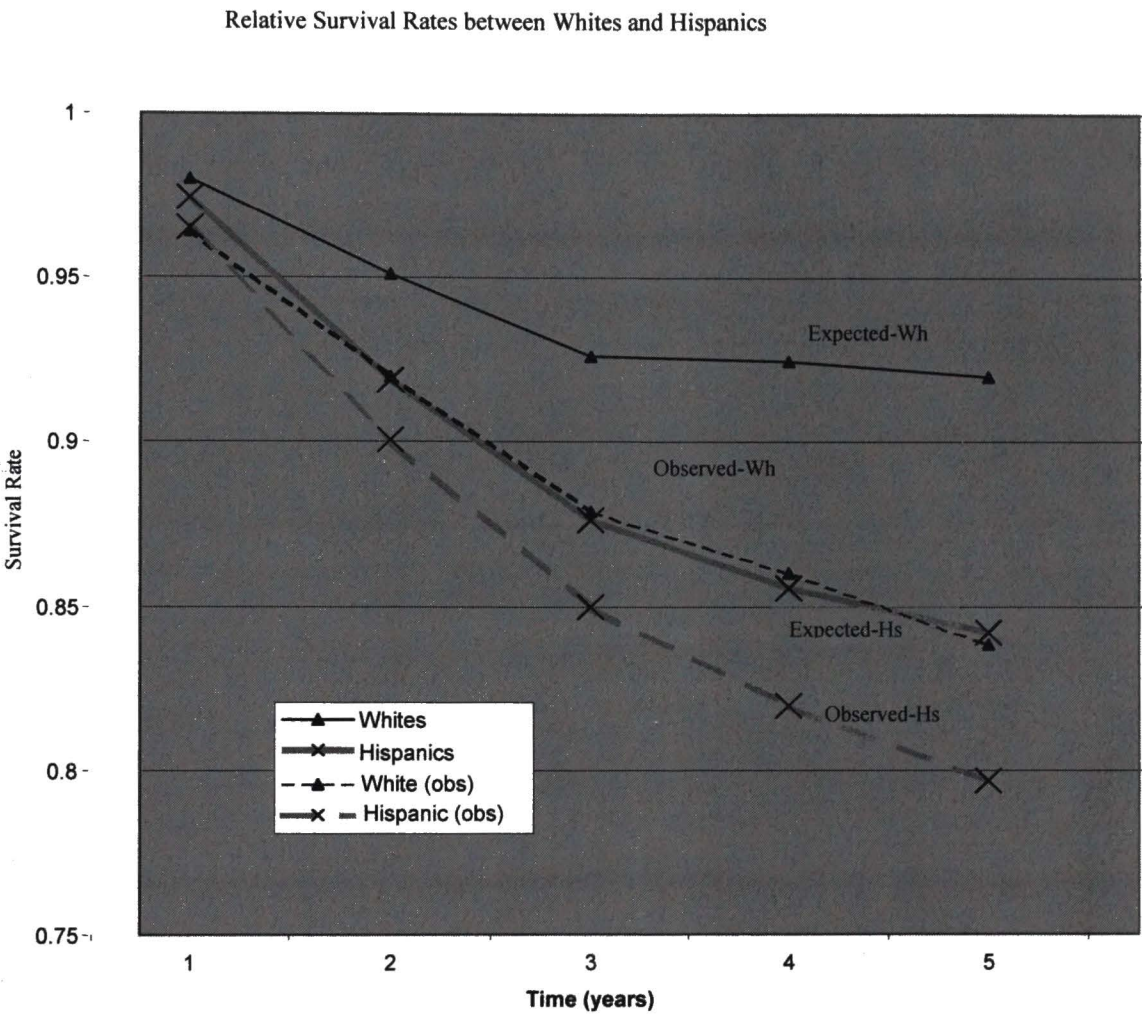


Figure 3. Relative Survival Rates



MAN
Y, I N C.
Please*

03

INDIANA 46962

