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**ASSESSMENT OF ENHANCED PRENATAL SERVICES BY WOMEN OF DIVERSE ETHNIC GROUPS  
IN MEDICAID MANAGED CARE**

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## EXECUTIVE SUMMARY OF THE COMPREHENSIVE FINAL REPORT

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### **ASSESSMENT OF ENHANCED PRENATAL SERVICES BY WOMEN OF DIVERSE ETHNIC GROUPS IN MEDICAID MANAGED CARE**

#### **Statement of the Problem**

With large numbers of pregnant women of diverse ethnic groups obtaining prenatal care from Medicaid health plans it is important to determine whether enhanced prenatal support services are associated with benefits to the women. There are many pressures on health plans to keep service costs low, and Medicaid plans are not likely to maintain the support services unless the benefits to women are also perceived as benefits by health plans. Satisfaction of enrollees with the health care they receive is well documented as a perceived benefit by health plans. Women who are satisfied with their care are more likely to recommend a plan to others, and to use a plan again when either they or other family members need care. Health professionals have characterized the health promotion and psychosocial support services of enhanced prenatal care as enabling providers to improve the interpersonal aspects of the care they provide and the satisfaction of their patients with their care. They report they have more opportunities to establish communication with the women, involve them in making healthy choices about their pregnancies, and provide them with emotional support. It is therefore important to determine whether low income pregnant women of diverse ethnic backgrounds actually agree with these impressions of health professionals. It is important to have women report on whether they receive health promotion and psychosocial services in prenatal care visits, and whether those who receive these services report better interpersonal care and greater satisfaction with care.

#### **Research Objectives**

The purpose of this study is to determine whether African-American, US-born Latina, nonUS-born Latina, and white women enrolled in Medicaid managed care health plans associate provider performance of health promotion and psychosocial services in prenatal care visits with higher quality of interpersonal processes of care and greater satisfaction with care.

The specific aims are to determine whether:

1. Health promotion and psychosocial services are associated with better reported interpersonal care.
2. Health promotion and psychosocial services are associated with higher ratings of satisfaction with care.

3. The association of health promotion and psychosocial services with better interpersonal care helps explain the association of the services with greater satisfaction with care.

## **Study Design and Methods**

To achieve these aims we surveyed African-American, white and Latina (born both in and outside the U.S.) women, all of whom received prenatal care in Medicaid health plans in four San Francisco Bay Area counties in California. The Medicaid health plans were all owned and operated by local county governments, and most women received care from public clinics and hospitals, though private physicians and clinics did participate in some plans. We developed a consumer survey with questions to measure women's reports of the extent to which providers performed health promotion and psychosocial services, quality interpersonal care, and their satisfaction with care. The measures of provider performance of support services were based on federal guidelines with recommended content for the services given to prenatal care providers in Medicaid health plans in a providers' manual (PHS, 1989; CDHS 1997). The measure for quality of interpersonal care is based on a construct developed for non-pregnant low-income men and women of diverse ethnic groups (Stewart et al, 1999). The measures of interpersonal care and satisfaction with care were adapted to be appropriate for the pregnant women in this study and were evaluated for their reliability and validity in all four ethnic groups with confirmatory factor analysis (Hays et al, 1999; Marshall et al, 2001). We tested hypotheses based on the specific aims that related these measures using both linear and logistic regression models that included adjustments for potentially confounding demographic, obstetric and other characteristics.

## **Findings**

In this study we provide evidence that pregnant women of diverse ethnic groups enrolled in Medicaid health plans who report they received prenatal support services are more likely to report better interpersonal care and satisfaction with care. African-American, US-born Latina, nonUS-born Latina, and white women who receive health promotion and psychosocial support services in prenatal care visits report higher levels of quality in their interpersonal processes of care, and receiving the support services is directly and indirectly associated with greater satisfaction with their prenatal care. Specifically, women who report receiving health promotion advice and psychosocial needs assessments also report higher quality processes of provider communication, decision-making and interpersonal style. Women who report receiving health promotion advice, psychosocial needs assessments, or better interpersonal care all rate their satisfaction with care higher. And when considered together, the effects of the health promotion and psychosocial assessments on satisfaction with prenatal care are explained by their effects on quality of communication and interpersonal style.

The extent to which the women report they are provided with either health promotion or psychosocial services is associated with their reports of greater quality of interpersonal care. Regardless of the area of health promotion (vitamins, eating, weight gain, physical activity or secondhand smoke), providing health promotion advice is significantly

associated with improved interpersonal processes of care. The associations are significant in all three dimensions of interpersonal care: communication, decision-making and interpersonal provider-patient style, and in all domains of each dimension. Providing a psychosocial needs assessment is also highly significantly associated with higher levels of interpersonal processes of care. The extent to which women report they were asked about problems in areas of mood, money, food, housing, parenting and abuse, the better their rating of interpersonal care in all dimensions.

The extent to which the women were provided health promotion and psychosocial services is significantly associated with higher global ratings of satisfaction with providers, their likelihood of recommending the provider to their friends and of using the provider if they become pregnant again. Interpersonal processes of care, however, are also significantly associated with satisfaction with care. When both service performance and interpersonal care are tested together for their association with satisfaction with care, interpersonal care still has significant associations with satisfaction, while the support services did not. Thus the main effects of the support services are on improved interpersonal processes of care, which in turn explain greater satisfaction with care.

### **Recommendations**

We recommend that Medicaid health plans, and providers of obstetric care to Medicaid eligible women, offer health promotion and psychosocial services with prenatal care. The findings of this study indicate that these two types of support services are associated with the quality of interpersonal dynamics of care between low income women of diverse cultural backgrounds and their providers of prenatal care. Women who report higher quality interpersonal processes of care are in turn more satisfied with their prenatal care providers and their health plans. Enhanced prenatal services can be expected to improve women's reports of quality of care in ways that should matter to Medicaid managed care plans and their providers.

## **List of Products**

### **Peer-review Articles**

Wong S., Korenbrot C., Stewart A. Measuring the Quality of Interpersonal Processes of Prenatal Care among low Income Women of Diverse Race and Ethnicity. Submitted for publication.

Korenbrot C., Stewart A., Wong S. Health Promotion and Psychosocial Services and Women's Assessment of Interpersonal Prenatal Care in Medicaid Managed Care. Submitted for publication.

### **Abstracts**

Carol C. Korenbrot, Psychosocial Services in Physician Offices: Lessons Learned in Perinatal Care Research, American Psychological Association, Enhancing Outcomes in Women's Health, Washington DC, 2002.

Carol C. Korenbrot, Anita L. Stewart, Sabrina Wong, Psychosocial Services and Health Behaviors in Ethnically Diverse Women, American Psychological Association, Enhancing Outcomes in Women's Health, Washington DC, 2002.

Carol C. Korenbrot, Anita L. Stewart, Sabrina Wong, Marie Fongwa, Thu Quach and Martha Castrillo. Assessment of the Quality of Nutrition, Psychosocial and Health Promotion Advice by Ethnically Diverse Pregnant Women. American Public Health Association, Washington DC, 2001.

Carol C. Korenbrot, Psychosocial Services in Physician Offices: Lessons Learned in Perinatal Care Research, American College of Obstetricians and Gynecologists, Chicago Illinois, 2001.

### **Presentations**

Carol C. Korenbrot, Assessment of the Quality of Interpersonal Care by Low Income Women of Different Ethnic Groups, Maternal and Child Health Branch, California Department of Health Services, Sacramento California, 2002.

Carol C. Korenbrot, Effects of Psychosocial and Health Promotion Services on Patient Satisfaction and Healthy Behaviors, Maternal and Child Health Branch, California Department of Health Services, Sacramento California, 2002.

Carol C. Korenbrot, Assessment of the Quality of Interpersonal Care by Low Income Women of Different Ethnic Groups, Perinatal Council of the East Bay, California 2002.

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**EXECUTIVE SUMMARY**

<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 Research Problem	
1.2 Purpose, Scope and Methods of Investigation	
1.3 Nature of the Findings	
<b>2.0 REVIEW OF THE LITERATURE .....</b>	<b>3</b>
2.1 Background of Enhanced Prenatal Services	
2.2 Challenge of Medicaid Managed Care to Enhanced Prenatal Services	
2.3 Opportunity for Enhanced Prenatal Services in Medicaid Managed Care	
2.4 Satisfaction with Care	
2.5 Need to Expand and Validate Measurement of Interpersonal Care	
<b>3.0 STUDY DESIGN AND METHODS .....</b>	<b>9</b>
3.1 Study Design	
3.2 Population Studied	
3.3 Sample Selection	
3.4 Survey Instrument Development	
3.4.1 Service Items	
3.4.2 Processes Items	
3.4.3 Satisfaction Items	
3.5 Survey Implementation and Data Collection	
3.6 Scale Construction and Testing of Reliability	
3.6.1 Services	
3.6.2 Processes	
3.6.3 Satisfaction	
3.7 Tests of Association of Services with Processes and Satisfaction	
3.7.1 Performance of support services and interpersonal care	
3.7.2 Performance of support services and satisfaction with care	
<b>4.0 PRESENTATION OF FINDINGS .....</b>	<b>17</b>
4.1 Final Scales, Reliability and Validity	
4.1.1 Service Scales	
4.1.1.1 Health Promotion Advice Scale	
4.1.1.2 Psychosocial Needs Assessment Scale	
4.1.1.3 Psychosocial Problems Scale	
4.1.2 Prenatal Interpersonal Processes of Care Scales	
4.1.3 Satisfaction with Care Scale	
4.2 Sample characteristics	
4.3 Provider Performance of Support Services	
4.4 Association of Support Services with Interpersonal Care	

4.4.1 Health Promotion Advice and Interpersonal Care	
4.4.2 Psychosocial Assessment and Interpersonal Care	
4.5 Association of Support Services and Interpersonal Care with Satisfaction with Care	
4.5.1 Interpersonal Care and Satisfaction with Care	
4.5.2 Health Promotion Advice and Satisfaction with Care	
4.5.3 Psychosocial Assessment and Satisfaction with Care	
<b>5.0 DISCUSSION .....</b>	<b>24</b>
5.1 Conclusions	
5.2 Limitations	
5.3 Comparison with other studies	
5.4 Possible Applications	
5.5 Policy Implications	
5.6 Suggestions for Further Research	

**REFERENCES**

**TABLES**

**FIGURES**

**APPENDICES**

Appendix A	Sample Characteristics: Survey items and responses
Appendix B	Health Promotion: Survey items and responses
Appendix C	Psychosocial Service: Survey items and responses
Appendix D	Performance of Health Promotion and Psychosocial Services: Reported by Ethnic Group
Appendix E	Importance of Support Services: Ratings by Ethnic Group
Appendix F	Healthy Behaviors and Support Service Performance
Appendix G	Submitted Manuscripts

# ASSESSMENT OF ENHANCED PRENATAL SERVICES BY WOMEN OF DIVERSE ETHNIC GROUPS IN MEDICAID MANAGED CARE

## 1.0 INTRODUCTION

### 1.1 Research Problem

With large numbers of pregnant women of diverse ethnic groups obtaining prenatal care from Medicaid managed care plans it is important to determine whether enhanced prenatal support services are associated with benefits to the women. There are many pressures on health plans to keep service costs low, and Medicaid plans are not likely to maintain the support services unless there are benefits to pregnant women and the benefits are also perceived as benefits to the health plans. Improving women's satisfaction with care is well documented as a perceived benefit to health plans. Enrollees who are satisfied with their care are more likely to recommend a plan to others, and to use a plan again when either they or other family members need care. The health promotion and psychosocial support services of enhanced prenatal care have been characterized by health professionals who provide them as improving interpersonal aspects of care including communication with the women, involving them in making healthy choices about their pregnancies, and providing them with emotional support. It is therefore important to have women report on whether they were provided these health promotion and psychosocial services, and then determine whether when provided those support services they associated those services with greater interpersonal care and whether that contributes to greater satisfaction with care.

### 1.2 Purpose, Scope and Methods of Investigation

The purpose of this study is to determine whether African-American, US-born Latina, nonUS-born Latina, and white women enrolled in Medicaid managed care plans associate provider performance of health promotion and psychosocial services in prenatal care visits with higher quality of interpersonal processes of care and greater satisfaction with care. The specific aims are to determine whether:

1. Health promotion and psychosocial services are associated with better reported interpersonal care.
2. Health promotion and psychosocial services are associated with higher ratings of satisfaction with care.
3. The association of health promotion and psychosocial services with better interpersonal care helps explain the association of the services with greater satisfaction with care.

To achieve these aims we performed a one-time survey of African-American, white and Latina (born in the U.S. and outside the U.S.) women, all of whom received prenatal care in Medicaid health plans in four San Francisco Bay Area counties in California. The Medicaid health plans were all owned and operated by local county governments, and



most women received care from public clinics and hospitals, though private physicians and clinics did participate in some plans. We developed a consumer survey with questions to measure women's reports of the extent to which providers performed health promotion and psychosocial services, quality interpersonal care, and satisfaction with care. The measures of provider performance of support services were developed from the guidelines in the providers' manual for enhanced prenatal care given all prenatal care providers in Medicaid health plans (CDHS 1997). The measure for quality of prenatal interpersonal care is based on a construct for general medical interpersonal care developed for non-pregnant low-income men and women of diverse ethnic groups (Stewart et al, 1999). Measures of both interpersonal care and satisfaction with care were adapted to prenatal care in this study and evaluated for their reliability and validity in all four ethnic groups with confirmatory factor analysis (Hays et al, 2000; Marshall et al, 2001). We tested the hypotheses relating these measures using linear and logistic regression models that included adjustments for potentially confounding demographic, obstetric and other characteristics.

### **1.3 Nature of the Findings**

In this study we provide evidence of a benefit of prenatal health promotion and psychosocial services. Providing women these support services in enhanced prenatal care is associated with higher assessments by the women of the quality of their interpersonal care, which in turn is associated with greater satisfaction with their prenatal care. According to consumer assessments by pregnant African-American, US-born Latina, nonUS-born Latina, and white women enrolled in Medicaid managed care health plans, women who reported receiving more health promotion and psychosocial services also reported higher quality provider processes of communication, decision-making and interpersonal style. Higher quality interpersonal care was in turn associated with higher ratings by the women of satisfaction with their prenatal care.

The extent to which the women reported they were provided either health promotion or psychosocial services was associated with their reports of greater quality of interpersonal care. Regardless of the area of health promotion (vitamins, eating, weight gain, physical activity or secondhand smoke), providing health promotion advice was significantly associated with improved interpersonal processes of care. The associations were significant in all three dimensions of interpersonal care: communication, decision-making and interpersonal provider-patient style, and in all domains of each dimension. Providing a psychosocial needs assessment was also highly significantly associated with higher levels of interpersonal processes of care. The extent to which women reported they were asked about problems in areas of mood, money, food, housing, parenting and abuse, the better their rating of interpersonal care in all dimensions.

The extent to which the women were provided health promotion and psychosocial services was significantly associated with higher global ratings of satisfaction with providers, their likelihood of recommending the provider to their friends and of using the provider if they become pregnant again. Interpersonal processes of care, however, were also significantly associated with satisfaction with care. When both service performance and interpersonal care were tested together for their association with satisfaction with

care, interpersonal care still had significant associations with satisfaction, while the support services did not. Thus the main effect of the support services was on improved interpersonal processes of care, which in turn explained greater satisfaction with care.

## **2.0 REVIEW OF THE LITERATURE**

### **2.1 Background of Enhanced Prenatal Services**

Enhanced prenatal care consists of defined services that evolved from the 1963 Maternal and Child Health (MCH) Bureau Maternal and Infant Care projects for low income, ethnically diverse women. These projects formally integrated obstetric care with support services in the area of health promotion (nutrition and health education) and psychosocial care, developing interdisciplinary team approaches to coordinated care (Gold et al, 1969; Nutting et al, 1979). Many states further developed such services through MCH Bureau Title V funding provided to the states through the years, and in several states have transformed the services into Medicaid benefits (GAO, 1994; Korenbrot et al, 1995; Reichman and Florio, 1997; Alexander et al, 1997).

The Public Health Service (PHS) established standards for the services for all women (PHS 1989). After reviewing extensive evidence concerning the medical, psychological and social risks that interact health in pregnancy, the expert panel recommended that all prenatal care should include health promotion and psychosocial services along with general medical assessments and interventions (PHS, 1989). Some of these services have been incorporated with the standards of the private physician organizations of the American Academy of Pediatricians and American College of Obstetricians and Gynecologists (AAP and ACOG, 1997). But the Public Health Service criteria are more explicit in the health promotion and psychosocial dimensions of care. They also emphasize that it is a team of medical and allied health professionals made up from diverse disciplines of physicians, midwives, registered nurses, nurse practitioners, community health workers, physician assistants, psychologists or social workers—that can best offer health promotion and psychosocial services for pregnant women.

Health promotion services of enhanced prenatal care are designed to improve healthy behaviors during pregnancy. Guidelines for prenatal care visits direct health professionals to provide advice on healthy maternal behaviors associated with better pregnancy outcomes (PHS, 1989; Woolf et al, 1996; AAP and ACOG, 1997). To devise the recommendations to providers, the PHS convened expert panels that first conducted authoritative reviews of the evidence (Merkatz and Thompson 1990; USPSTF, 1996). They then made specific recommendations on selected behaviors during pregnancy. Many of the recommendations addressed the content of the advice that should be given to all pregnant women regardless of risk: those recommendations included advice on tobacco, alcohol and drug use; nutrition (vitamins, minerals, foods and weight gain); and exercise (Paine and Garceau, 1999).

Psychosocial services of enhanced prenatal care are designed to reduce psychosocial problems which in turn have been associated with interference with healthy behaviors, use of prenatal care and poor health outcomes in pregnancy (Paine and Garceau, 1999).

Recommendations about psychosocial services are based on authoritative reviews of the evidence (Thompson, 1990; Paine and Garceau 1999). Rather than giving all women routine advice about psychosocial problems, women are individually assessed for their particular psychosocial problems and given advice and if appropriate offered on site counseling and other resources, or referrals to counseling and resources. Included in psychosocial risk areas are psychological mood disorders and depression, problems with becoming a parent or parenting other children while pregnant, and physical or emotional abuse; and socioeconomic problems with insufficient money or food, and problems with housing including problems with landlords and neighbors.

Enhanced prenatal care support services need to be evaluated by pregnant women for whether they contribute to the quality of prenatal care. The health promotion and psychosocial services have been developed with involvement of multidisciplinary professionals, their content has been described and established by practice guidelines that are evidence-based, and they have been evaluated extensively by professionals for impact on use of care and health outcomes (McLaughlin et al, 1992; Korenbrot et al, 1995; Reichman and Florio 1996; Alexander et al, 1997; Baldwin et al, 1998; Homan et al, 1998; Newschaffer et al, 1998; Newschaffer et al, 1999; Klerman et al, 2001; Reichman and Teitler, 2003). Women have been asked to report on whether they were given certain health behavior advice (taking vitamin and mineral supplements, eating proper foods, weight gain and smoking, alcohol, drug use) (Kogan et al, 1994). Women have been asked in qualitative studies for their opinions about the services (Wilkinson and Gonzalez-Calvo, 1999). Furthermore, it has been shown that not receiving any of the behavioral advice has been associated with poorer health outcomes (Kogan et al, 1994), and receiving repeated psychosocial assessments during pregnancy is associated with better pregnancy outcomes (Homan et al, 1998). But it has not been determined whether obtaining the support services is associated with higher consumer assessments of the quality of their prenatal care.

Women from different cultural backgrounds have varied views of pregnancy and prenatal care. Although in the U.S., pregnancy is considered a health condition, different cultural groups have differing beliefs about what are considered healthy behaviors and on how much non-family members should know about personal and family problems (Lipson et al, 1996). While there is a clear role for reliance on the medical expertise of health professionals' advice, there is not a clear role for deference in matters of lifestyle choices surrounding healthy behaviors and psychosocial problems (Ruzek, 1997). Thus it is important to determine not only whether women associate health promotion advice and psychosocial assessments with the quality of prenatal care they receive, but whether women of different cultural backgrounds differ in their associations.

## **2.2 Challenge of Medicaid Managed Care to Enhanced Prenatal Services**

More low income, ethnically diverse pregnant women are being seen in health plans for prenatal care because of expanding Medicaid eligibility and increased penetration of managed care in state Medicaid programs (GAO, 1993; Kaiser Commission, 2001). Enrollment of pregnant women in Medicaid managed care plans has the potential to reduce access to enhanced prenatal services among low income women because fewer women are seen by public providers who provide more of the services, and because offering the services

requires additional resources (GAO, 1994; Kotelchuck et al, 1997; Minkovitz et al, 1999a; Minkovitz et al, 1999b). Providing enhanced prenatal services costs plans and providers additional resources. The plans must either provide the services themselves, rely on public providers, or integrate publicly provided support services with privately provided obstetric care. Since providing or integrating the support services requires additional time and personnel, managed care plans and their providers must be convinced that the benefits of the services are worth the added resources they require. Financial incentives in managed care can work to discourage providing added services like enhanced prenatal care services unless evidence is provided that they are worth their costs. If enhanced prenatal services are to be accessible to Medicaid eligible women, evidence is needed as to whether or not the services improve care in ways that matter to Medicaid managed care plans.

### **2.3 Opportunity for Enhanced Prenatal Services in Medicaid Managed Care**

The growing recognition of the role of consumers in assessing quality of care is an opportunity to document the value of enhanced prenatal services to women in Medicaid managed care plans. Women's assessments of care provide important information about how well providers meet their health care needs (Morales, 2001; Gold and Wooldridge, 1995). Having the assessments of women of diverse ethnic backgrounds enrolled in Medicaid managed care plans is particularly important because of the chances for unequal treatment of women of socioeconomic and cultural backgrounds that vary from those of health care providers (Weech-Maldonado et al, 2003).

Quality of care is defined by the Institute of Medicine as the degree to which health services increase the likelihood of desired health outcomes and are consistent with current professional knowledge (Institute of Medicine, 1990). For assessment of quality, clinical care and its support services are historically divided into their structure, process and outcome characteristics (Donabedian, 1968). Structural characteristics of prenatal care include such factors as availability of support services (Handler et al, 1998). The processes of care are subdivided into technical and interpersonal processes of the care. Technical processes in prenatal care include the content of care according to professional guidelines, including those of support services (Baldwin et al, 1994; Murata et al, 1994; Haas et al, 1996). Interpersonal processes of care address the 'art of care,' or the 'provider-patient relationship,' or the way that care is delivered by individual professionals. The outcomes of care include health outcomes of the patients, but largely as a result of the consumer movement, they now also include consumer evaluations of satisfaction with the structure, processes and outcomes of prenatal care themselves (Lawrence et al, 1999; Handler et al, 1996; Handler et al, 1998; Handler et al, 2003a; Handler et al, 2003b). Characteristics of care can either be subjectively *rated* by consumers, or objectively *reported* as to whether they occurred or not, or how often they occurred. The higher the ratings, or the more often characteristics of care established by professional guidelines are reported, the higher the quality of the care.

Medicaid promotes the use of consumer assessments that allow enrollees to assess their experience with providers in the plans (Gold and Wooldridge, 1995; Jencks, 1995). Many state Medicaid programs including California, Texas and Washington state use a survey developed by the federal Agency for Healthcare Research and Quality (the Consumer Assessments of Health Plans Study survey) as part of their routine quality assurance and

quality improvement efforts (Brown et al, 1999; Crofton et al, 1999). In a Midwestern health plan, African-American women's assessments of prenatal care were found to be higher for those with Medicaid than for those without Medicaid (Handler et al, 2003b). In Georgia, however, women with Medicaid were less satisfied with their obstetric care than private pay women (Crutchfield et al, 2002).

In our study we focus on consumer reports of provider performance of technically recommended content of health promotion and psychosocial care, and then test whether higher provider performance is associated with higher consumer reports of interpersonal processes of care, and consumer ratings of satisfaction with care. Satisfaction with care is a longstanding consumer measure of care that has been useful in the rating of care by diverse groups of people, but not helpful in determining how to improve care for diverse populations. Measuring interpersonal processes of care has more recently received attention for new consumer measures of quality of care to determine what aspects of the delivery of care need to be improved for diverse populations. We therefore review the relevant literature for satisfaction with care, particularly prenatal care and its support services, and then present the studies for developing a new measure of interpersonal processes of care for low income pregnant women of diverse ethnic groups.

## 2.4 Satisfaction with Care

Individual ratings of how 'satisfied' people are with the characteristics of their own care have become a standard consumer assessed measure of quality of care (Aharony and Strasser, 1993; Cleary, 1999). Three primary reasons are that, 1) effective diagnosis and treatment depends on quality communication and involvement of patients in the treatment process (Cleary and McNeil, 1988); 2) consumer assessment of quality of care correlates with compliance with medication and seeking care when medically necessary (Hall et al, 1998); and 3) patient perceptions of inadequate care have been shown to correlate with decisions to change providers or disenroll from plans (Allen and Rogers, 1997; Newcomer et al, 1996; Schlesinger et al, 1999). Satisfied patients have been found to participate in their own treatment better and disclose more important medical information (Bartlett et al, 1984). In addition in prenatal care, satisfaction with physician communication has been demonstrated to be higher for physicians with fewer malpractice claims (Hickson et al, 1994).

Satisfaction with care measures vary among studies. There are 'global' overall measures of satisfaction (for example, one question, "How satisfied were you with your care?") and multidimensional measures (rating satisfaction with structure, technical and interpersonal processes, or outcome components of care). The strength of these global measures are that they have been found to associated with a wide variety of factors hypothesized to be components of quality care. The limitation is that the ratings tend to be high with little variation ('ceiling' effect). There are a variety of characteristics of prenatal care that have been quantitatively associated with measures of satisfaction with prenatal care, including short waiting times and continuity with a single provider over the pregnancy (Sullivan and Beeman, 1982; Gravely and Littlefield, 1992; Handler et al, 1998; Harvey et al, 2002). Studies using global ratings of satisfaction with prenatal care have documented that *ratings* of interpersonal care contribute most to overall satisfaction (Sullivan and Beeman, 1982; Handler et al, 1998). In one study, whether or not the prenatal provider explained procedures

was the most important determinant for both African-American and Mexican-American women, more important than whether they asked or answered questions (Handler et al, 1998). Multidimensional measures of satisfaction with prenatal care have also been used but have not been found to predict more adequate use of prenatal care visits in a group of African American women (Handler et al, 2003a).

Satisfaction with health promotion and psychosocial services has been investigated but in connection with medical care in general, not prenatal care. African Americans were found to rate the importance of health promotion and psychosocial services of physicians higher than whites, and rated the performance of their physicians higher for these services (Murray-Garcia et al, 2000). Latinos did not differ from whites in either their rating of the importance or performance of the support services in physician encounters. The availability of prenatal health promotion and psychosocial services on site has been found to be associated with satisfaction with prenatal care, but the women were not asked to report on satisfaction with the services (Handler et al, 1998).

## **2.5 Need to Improve Measurement of Interpersonal Care**

To be appropriate for low income people of diverse ethnic groups measures of interpersonal processes of care need to include psychosocial aspects of the patient-provider dynamics that are particular to encounters of professionals with people of different cultural backgrounds, low education or income. An array of social factors in addition to race and ethnicity—including gender, age literacy, social class and the normative expectations of patients and providers all interact in the interpersonal dynamics of care (Cooper and Roter, 2002). Cultural competence has been defined as the ability of individuals to establish effective interpersonal and working relationships that supercede cultural differences (Cooper and Roter, 2002).

Psychosocial aspects of the patient-provider interaction included in the original concepts of interpersonal processes of care included communication, friendliness, and being caring and sensitive to patients' needs (Cleary and McNeil, 1988). In cross-cultural care there are many issues surrounding culturally competent communication, participatory decision-making and appropriate interactions between providers and patients (IOM, 2002). Race and ethnicity have been cited as key barriers in communicating with patients, and in including patients and their needs in the process of decision-making (Cooper-Patrick et al, 1999; IOM, 2002).

Consumer satisfaction surveys, however, usually include a single, largely undifferentiated construct of interpersonal care (Ware and Davies, 1988). This construct is too narrow to capture issues of communication, decision-making and caring related to race, education and income such as empowerment and discrimination (Stewart et al, 1999). Even in a recent prenatal care survey of Medicaid plan members who were African-American that included interpersonal processes, the processes were characterized in ratings of 3 items: provider explains procedures, answers questions and asks questions (Handler et al, 1998).

Consumer survey instruments need to include multiple dimensions and domains that capture cultural competency of interpersonal care of low-income people. One of the advantages of consumer assessments in diverse ethnic groups is that they can assess directly the cultural and linguistic appropriateness of care (Morales 2001). They can implicitly assess the

appropriateness because they capture experiences with care from the patient's perspective. They can also explicitly assess the appropriateness by asking patients about domains of quality of care related to cultural appropriateness like discrimination (because of race/ethnicity, or lack of educated or fluent English). In addition instead of vague global ratings of processes, consumers can report on their actual specific experiences with processes of care that are particularly sensitive. The survey instruments used in diverse cultural populations, however, the equivalence of measurement across the populations needs to be tested explicitly and not merely assumed.

Stewart and colleagues have developed a conceptual framework and survey instrument for consumer assessment of quality of interpersonal processes of care (IPC) among low income ethnically diverse populations that includes multiple dimensions and domains (Stewart, Napoles-Springer, and Perez-Stable, 1999). They hypothesized three dimensions for IPC: communication, decision-making, and interpersonal style, and 10 domains (Table 3.4).

The hypothesized dimension of communication had four domains: General clarity, Elicitation of a patient's problems, Explanations of processes of care and Empowerment. General clarity is the provider's basic ability to communicate, particularly with patients who are not very literate or who speak a different language. It involves matching the level of language to the patient's ability to understand, using little medical jargon, speaking clearly and slowly enough for patients to understand, and determining that patients understand what they are saying. Elicitation of a patient's problems refers to taking enough time to elicit the patient's most important concerns and applying skills and cultural competence in drawing out patients' concerns and expectations, especially about sensitive topics. It also pertains to helping patients feel comfortable enough to discuss concerns, asking the patient about concerns if the information is not volunteered, taking the patient's concerns seriously, listening carefully, and paying attention without being distracted. Explanations of processes of care is the provider's ability to give patients explanations about what is happening and what is to expect in terms of tests, procedures, treatment regimens, therapies, referrals, and follow-up visits. For complex information, clear instructions need to be provided. Finally empowerment is the process by which patients are given a sense that they have the ability to affect their own health outcomes. It involves encouraging patients to assume personal responsibility for their health and impart the idea that what patients do influences their health.

Decision-making was hypothesized to include two domains: Responsiveness to patient preferences and Consideration of the patient's ability and desire to comply with recommendations. Being responsive refers to the determining how much patients would like to be involved in their own care and the consideration of the importance of various outcomes to patients. It involves explaining alternative options for their care if there are any, how each might differ in terms of outcomes, and discussing pros and cons of each option. Both provider and patient arrive at mutually agreeable strategies for care. Considering the patient's desire and ability to comply advice is also important. It involves understanding of patients' thoughts about the recommended advice and to be aware of any barriers to its implementations so that it can be modified if necessary.

Interpersonal style was hypothesized to include four domains: Respectfulness, Lack of perceived discrimination, Friendliness and courteousness, and Emotional support and

reassurance. Respectfulness is defined as the extent to which providers show genuine interest in the patient as a person, paying attention to privacy during examinations and discussing the patient's condition with staff, and avoid patronizing the patient. Lack of perceived discrimination refers to providers ensuring that patients are not made to feel inferior because of socioeconomic status or ethnicity. Friendliness and courteousness is the provider's and office staff's effort to make patients feel welcome and treat them in a friendly, courteous manner. Emotional support pertains to offering reassurance, caring, and empathy during the encounter, particularly while information is being conveyed.

In our study we used the IPC conceptual framework to devise a survey instrument for prenatal interpersonal processes of care (PIPC), and then use the confirmed factors of PIPC in communication, decision-making and interpersonal style to test our study hypotheses of whether provider performance of prenatal health promotion and psychosocial services are associated with higher values for these factors, and then whether the higher values for the factors help explain any association of the services with greater satisfaction with care.

### **3.0 STUDY DESIGN AND METHODS**

#### **3.1 Study Design**

We conducted a one-time telephone survey of pregnant women in three racial/ethnic groups receiving prenatal care in four Medicaid public (county government) health plans in the San Francisco Bay Area of California between February and August, 2001.

#### **3.2 Population Studied**

The population sampled included African-American, Latina (White) and (non-Latina) White pregnant women enrolled in Medicaid public managed care plans in Alameda, Contra Costa, San Francisco and San Mateo counties. The public or "Local Initiative" plan in each county is a not-for-profit plan organized by public agencies that operates in parallel to a second commercially organized, private for-profit Medicaid plan (CDHS, 1995). The public plans relied primarily on providers with a disproportionate share of Medicaid-covered and uninsured patients (community clinics and public hospitals), while the private plans relied primarily on private providers. Though the Northern California Kaiser Health Organization also participated in the public plans, their lists of patients were not available to the research study. African-American, Latina and White women form 92% of all women in the state giving birth with Medicaid coverage during pregnancy, and 81% of the Medicaid-covered women in these four counties (California vital statistics, 1999).

#### **3.3 Sample Selection**

The names, telephone numbers and estimated dates of delivery for pregnant women who had started prenatal care in any of the four plans were collected from the plans every two weeks. Some plans were able to provide race and ethnicity of the women in prenatal care, others were not. With the available information all pregnant women with unknown



race, or race indicated as African-American, Latina or White who had pregnancies between 20 and 34 weeks gestation as estimated from their estimated dates of delivery were called at least three times, at three different times of the day, at least once during the week and once during an evening or weekend. Pregnant women who gave their consent were first asked whether they preferred to take survey in English or Spanish, and then asked a series of questions to determine if they were eligible for the study. The initial questions were designed to confirm that the women were, 1) between the ages 18 to 44 years; 2) with a pregnancy that was between 20 and 34 weeks gestation, 3) enrolled in a managed care plan; 4) had at least two prenatal care visits with their plan provider; and 5) identified themselves as African American, Latino, or White. For actual wording of the race/ethnicity question, see Appendix A.

### **3.4 Survey Instrument Development**

The survey instrument was designed to capture quality of interpersonal processes of prenatal services, technical processes of specific health promotion and psychosocial services, and satisfaction with care. Five separate concepts, Health Promotion Services, Psychosocial Services, Prenatal Interpersonal Processes of Prenatal Care (PIPC), Satisfaction with Prenatal Care and Healthy Behaviors, were captured. Several items for each concept were used to capture each concept. For survey questions and responses in the Health Promotion and Psychosocial Service areas see Appendices B and C. For survey questions and responses in the PIPC and Satisfaction with Care see Tables 3.4 to 3.6 below. The last concept: Healthy Behaviors did not yield reliable or valid measures and is therefore excluded from further presentation (See Appendix F).

A diverse research team, which had representation from African American, Latina, Chinese, and White cultural backgrounds (Fongwa, Castrillo, Wong, Korenbrot and Stewart) developed items for the survey using authoritative sources and adapting them to this diverse pregnant population. Ethnic-specific focus groups were used to probe potential items of the survey that were potentially confusing to low income pregnant women of these particular ethnic groups (Fowler, 1995). Six focus groups, two for African-Americans, Latinas (one in English, one in Spanish) and whites, were conducted in November-December 2000. Six to 10 women participated in each ethnic-specific focus group. Women were recruited from the WIC sites that provided services to pregnant women in two of the public plans (San Francisco and Alameda Counties). The focus groups were held at a specified time for 90 minutes at the WIC sites. Each focus group was facilitated by a research team member of the same ethnic background (both focus groups with Latinas were conducted in Spanish by the research team member who was a native speaker of Spanish). No one was present in the room who was not of the same ethnic background. The focus groups were recorded and transcribed with the written consent of all participants. All women were given \$20 cash at the conclusion of the focus groups for their participation. All focus groups considered the same items that the multicultural research team deemed were potentially difficult or confusing for one or more of the ethnic groups were used as probes in focus groups. Transcriptions of all focus groups were summarized by the researchers and presented to the research team to determine how best to resolve use of potentially confusing items.

**3.4.1 Service Items.** Items for reporting the Performance of Health Promotion Advice and Performance of Psychosocial Needs Assessment originated with the formalized guidelines for Comprehensive Perinatal Services Program (CPSP) care in California promulgated to providers in California in the CPSP Providers Handbook (CDHS 1997). We first identified all areas of Health Promotion (health education and nutrition) Advice and Psychosocial Needs Assessment services in the Providers Handbook. We narrowed the health promotion guideline areas to six that were also specified in federal guidelines (PHS, 1989; IOM, 1990; NCEMCH, 2002; Schor, 2003). In each item about provider Health Promotion performance, the question was framed “Have you received advice from their provider(s) during a prenatal visit about [fill in area of health promotion here].” Guidelines for giving advice in each of these areas was specified in the following pages of the provider manual (CPSP, 1997): 1) Taking Vitamins (guidelines’ manual pages Nutr 59-62); 2) Eating for a Healthy Pregnancy: What to Eat and how much (Nutr 17-26); 3) Weight Gain (Nutr 1-16); 4) Safe Exercise in Pregnancy (HE-43-50); 5) Secondhand Tobacco Smoke (HE-54 – 56) (page designations refer to the CPSP Provider Handbook). For questions and responses see Appendix B.

We used the same CPSP Provider Handbook guidelines for providing psychosocial services to identify all psychosocial areas that providers were asked to assess for all pregnant women (CDHS 1997). We narrowed psychosocial guideline areas to seven that were also specified in federal guidelines (PHS, 1989; IOM, 1990; MCHB Bright Futures): depression, financial concerns, adequate food, housing, parenting, domestic abuse, legal concerns (PHS, 1989). In each item about Psychosocial Assessment performance, the question was framed “Have you been asked by your provider(s) during a prenatal visit if you have a problem [fill in area].” Guidelines for assessment of each of the areas selected was specified in the following pages of the provider manual (CPSP, 1997): 1) Emotional or Mental Health Concerns, Depression (Psy 65-76); 2) Financial Concerns (Psy -25-27); 3) Obtaining Adequate Food (Psy 28-29); 4) Housing Concerns (Psy 27-28); 5) Parenting Stress, Child Abuse and Neglect (Psy 37-45); and 6) Abuse (Psy 46-56) (page designations refer to the CPSP Provider Handbook). All women were asked whether or not a provider at any of their prenatal care visits had asked them whether they had any problems in the 6 psychosocial areas of need: depression (moodiness), not having enough money, not having enough food, housing, parenting, or being hurt by someone. For questions and responses see Appendix C. The scale developed for reliability testing was the simple sum of ‘yes’ responses (Table 3.2).

Items for reporting Psychosocial Problems were based on each of the areas of psychosocial assessment performance. Because whether or not a woman had a problem in a given psychosocial area might affect whether or not a provider asked whether a woman had such problems (the equivalent of a psychosocial needs assessment for that area), all women surveyed were asked whether, “During your pregnancy have you had any problems . . .” in each of the areas of psychosocial need with yes/no responses. For questions and responses see Appendix C. The scale value for reliability testing was the sum of all “yes” responses for the areas (Table 3.2).

**3.4.2 Processes Items.** Items for reporting Prenatal Interpersonal Processes of Care (PIPC) were grouped in the three dimensions hypothesized by Stewart and colleagues (Communication, Decision-making and Interpersonal Style) (Stewart et al, 1999). A number of items in the IPC for medical primary care had to be adapted for prenatal primary care.

The major overriding issue is that most pregnant women do not have a medical problem, and therefore they do not receive medical care, but they have a potential medical problem and are continually screened to see if they need medical care. Items had to be adapted for primary preventive care, rather than intervention or secondary preventive care. For example, “How often did providers go over medicines you were taking?” Had to be changed to “How often did providers go over whether you were taking any medicines (prescription or over the counter) during this pregnancy (that they didn’t prescribe)?”

**3.4.3 Satisfaction Items.** Our items for satisfaction with care are adapted from two existing surveys so that our measure of patient satisfaction can be evaluated for external validity. The questions came from two instruments that are relevant to our study population: one source is the Patient Satisfaction Questionnaire (Ware and Davies); and the other from the Consumer Assessment of Health Plans instrument (CAHPS) sponsored by the AHRQ for Medicaid plan enrollees (Hays et al, 1999).

### 3.5 Survey Implementation and Data Collection

After selection of items and refinement of items and based on focus groups, a completed survey was pre-tested in English to assess its feasibility and identify inconsistencies. A formal pretest of the survey was conducted in January 2001. Every step of the survey was implemented for one plan, and 15 women of the three ethnic groups were surveyed in English by the Survey Coordinator. Feedback from the Survey Coordinator was used to remove certain topics (advice on use of seat belts in pregnancy, and psychosocial assessment of legal concerns) within conceptual areas. The Survey Coordinator reported the pretest survey was too long (35 minutes on average) and some women had difficulties with the seat belt questions in the Health Promotion area of the survey, and other women were reluctant to discuss whether their family was having legal problems in the Psychosocial area of the survey. Therefore the items related to these two topics were removed from the survey.

After the pretest the final survey instrument was translated into Spanish using the forward-backward translation method (Brislin, 1976; Maren and Maren, 1991): 1) the version in the original language is translated by translator A into the target language; 2) a second translator (translator B) takes the product of the previous step and independently translates it back into the original language; 3) the researcher compares both versions in the original language and checks with the translators for inconsistencies; and 4) another round of translations may be necessary for sections in which there are a large number of inconsistencies. Translator A was a Central American-born Latina survey worker on the research team, Translator B was a Mexican-born Latina who was a community program manager with one of the Medicaid health plans in the study. Disagreements were worked out by consultation of the two translators. In some cases alternative Spanish words were included unique to Latin countries that were commonly represented in the Bay Area.

All women who met study inclusion criteria were surveyed in either English or Spanish via telephone using Computer-Assisted Telephone Interview (CATI) software. The CATI survey contained five sections for each of the five concepts and a section on sociodemographics. The survey took was designed to take 25 minutes to complete. If an

interview was interrupted the woman was asked if the interviewer could call again at a later time. Each woman who completed the survey was mailed \$20 in appreciation for her participation in the study. The Institutional Review Board of the University and the managed care plans approved all procedures.

### 3.6 Scale Construction and Reliability Testing

All final scale scores were converted to 0-100 scales, such that higher scores meant ‘better,’ ‘healthier’ or ‘more desirable’ values of the concept. We examined variability, reliability (internal consistency) of all scales for the whole sample and each ethnic group.

Variability of the resulting scales was investigated to avoid scales so narrow in range or so non-normal in their distributions that they would not be useful measures in regression analyses. If the range is wide, the distribution not skewed, and floor and ceiling effects on values are minimal, then tests of association in regression analyses are not likely to produce misleading results. The skewness statistic was used to indicate the degree of asymmetry in the distribution, which ranges from negative to positive infinity. The closer the score to zero, the more normal is the distribution; scores over 2.0 were considered skewed. Floor and ceiling effects were examined. There is no single accepted criterion for acceptable effects, however, if a scale meets all other criteria – including internal consistency and item-scale convergence – then the scale and its items were retained with noted floor or ceiling effects. In presenting results of tests of study hypotheses, the lack of significant association, and the relative size of significant associations, are reevaluated in view of any floor or ceiling effects noted in the scales (Nunnally and Bernstein, 1994).

Internal consistency reliability of each scale was assessed using Cronbach’s alpha (Nunnally and Bernstein, 1994). For dichotomous items the Cronbach’s alpha is identical to the Kuder-Richardson statistic (KR-20). The standard of an alpha statistic of 0.70 or higher was used as a criterion for internal consistency reliability. The specific scale construction and reliability issues are now discussed for each type of scale.

**3.6.1 Services.** For the two measures of support service performance and the potentially confounding measure of psychosocial problems, the scale developed for reliability testing were the simple sums of ‘yes’ responses. For Health Promotion advice the five items with yes/no responses were hypothesized to measure provider performance. Similarly, for Psychosocial Assessment six items with yes/no responses were hypothesized to measure provider performance. And for Psychosocial Problems the six items regarding the six areas of performance of psychosocial assessment were hypothesized to measure the problems that could potentially confound whether the psychosocial assessments were performed or not.

**3.6.2 Processes.** For the PIPC we tested for three dimensions, Communication, Decision-Making, and Interpersonal Style, that were hypothesized in the conceptual framework (Stewart et al, 1999) (Table 3.3). First, confirmatory factor analysis, using maximum likelihood extraction and oblique rotation, was used to test for the hypothesized domains within the three dimensions, for the total sample. Factor analyses by ethnic subgroup and studies of invariance were not possible due to the small sample sizes. In the original PIPC measures each domain, or subscale, was separately analyzed; therefore, three separate sets of

factor analyses of the items belonging to each of the three dimensions was performed. Using factor analyses, we attempted to confirm the same dimensions with the same domains and the same items loading on these domains as those found in the original PIPC measure: A four-factor solution to the Communication domain, a two-factor solution for the Decision-Making domain, and a four-factor solution for the Interpersonal Style domain. (Stewart, et al, 1999). However, these factor solutions did not correspond to the original factor structure found by Stewart and colleagues.

Second, exploratory factor analysis was performed, using maximum likelihood extraction and oblique rotation, to determine the factor structure of the Communication, Decision-making, and Interpersonal Style domains in the overall sample. Using the criteria of  $\geq .40$  factor loading, we examined the factor loadings to determine which items would form conceptually appropriate factors.

In the entire sample, the factor structure for PIPC indicated there were three domains of Communication, Decision-Making, and Interpersonal Style but only 8 instead of the expected 10 scales (Tables 3.3 and 3.4). An item hypothesized to measure General Clarity, “How often did the nurses, midwives, doctors or other providers make sure you understood what they were saying before going on”, was dropped because it did not meet factor loading nor item-scale correlation criteria. The item, “How often did providers give you enough information about your pregnancy”, which was hypothesized to measure Explanations of Processes of Care, was dropped because it had a marginal factor loading (0.44). Another item hypothesized to measure Explanations of Processes of Care, “How often did you feel confused about what was going on with your pregnancy care because providers did not explain things well”, was dropped because there was no high loading on any factor. The final Empowerment scale included two items originally hypothesized to be part of the Communication domain: “How often did providers tell you how to pay attention to your symptoms?” and “How often did providers make you feel that following their advice would make a difference in your health or the health of your baby?”. The item, “How often did providers go over whether you were taking any medicines (prescription or over the counter) during this pregnancy (that they didn’t prescribe)” was dropped because it did not conceptually fit with the factor Empowerment.

Although it was expected that the Decision-Making domain would have two scales (Table 3.3), in our sample, it had only one (4 items) (Table 3.5). Two items were dropped because they had low factor loadings ( $\leq 0.40$ ): “How often did providers make decisions without taking your preferences or opinions into account” and “How often did you feel pressured by providers to do something you weren’t sure you wanted to do.”

The Interpersonal Style domain had three scales: Perceived Discrimination (7 items), 2) Respectfulness (6 items) and 3) Friendliness and courteousness (3 items) (Table 3.6). Items originally hypothesized as two scales Respectfulness and Emotional Support all loaded onto one factor (Respectfulness/Support). The items, “How often did providers talk in front of you as if you weren’t there” and “How often did providers respect your privacy when examining you or when asking you questions” were dropped both because of low factor loadings and because they were loading on more than one factor. Only 7 of the 8 scales

(Tables 3.7) were used. All 7 other subscales adequately met the criteria for normality, reliability and content validity.

**3.6.3 Satisfaction.** Three items were placed into one scale: 1) “Overall, how would you rate the care you are getting at your prenatal visits?”; 2) “If you had a friend who was pregnant, how likely are you to recommend your present prenatal care provider?”; and 3) “If you became pregnant again in the future, how likely are you choose to come back to your present provider?” The sum of three five-point Likert scale with either the responses, “excellent, very good, good, fair”, or “poor or extremely likely, very likely, somewhat likely, not too likely, or not at all” made up the response set. Reliability was tested as described above for all three types of scales.

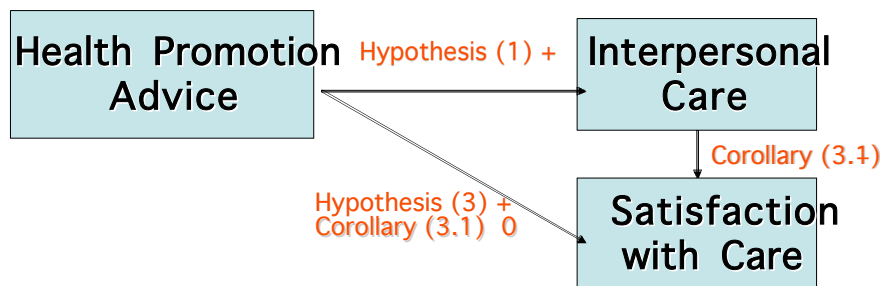
**3.7 Hypothesis Testing of Association of Services with Processes and Satisfaction**

The study hypotheses and corollaries are as follows:

**3.7.1 Performance of support services and interpersonal care**

Hypothesis (1) The performance of health promotional advice is positively associated with quality Interpersonal Care (Communication, Decision-making and Interpersonal Style) (Figure 1).

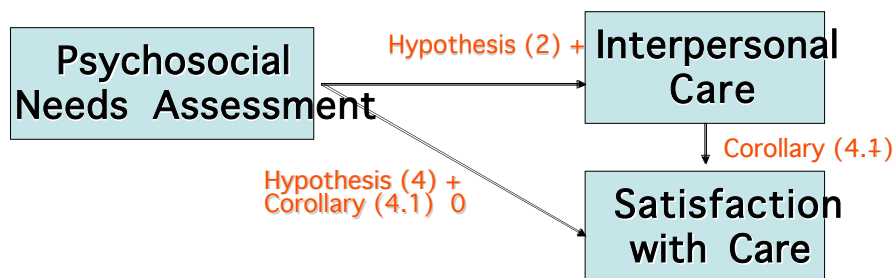
Figure 1. Hypothesized Effects:  
Health Promotion Services



1

Hypothesis (2) The performance of psychosocial needs assessment is positively associated with quality Interpersonal Care (Communication, Decision-making and Interpersonal Style) (Figure 2).

Figure 2. Hypothesized Effects:  
Psychosocial Services



2

### 3.7.2 Performance of Support Services and Satisfaction with Care

Hypothesis (3) The performance of health promotional advice is positively associated with satisfaction with care (Figure 1).

Corollary (3.1) The association is explained by the association of health promotion advice with quality of Interpersonal Care (Communication, Decision-making and Interpersonal Style) with satisfaction with care.

Hypothesis (4) The performance of psychosocial needs assessment is positively associated with satisfaction with care (Figure 2).

Corollary (4.1) The association is explained by the association of quality of Interpersonal Care (Communication, Decision-making and Interpersonal Style) with satisfaction with care.

The purpose of the analytical models is to determine whether pregnant women of different ethnic groups associate provider performance of health promotion and psychosocial services in prenatal care visits with higher quality of interpersonal care and greater satisfaction with care. In order to test whether there was an association between provider performance and higher quality of interpersonal care, models were constructed with a dependent variable of the PIPC score. The association of the study variables for provider performance of Health Promotion Advice were tested in separate models in the 5 separate areas of health promotion because they failed to meet criteria for a composite scale. The association of the study variables for provider performance of Psychosocial Assessment required only one model because all six items met criteria for a composite scale. In order to test whether there was an association between provider performance and satisfaction with care, similar models were constructed, with and without PIPC variables.

The potentially confounding variables tested for inclusion in each of the final models were sociodemographic (age, education, marital status), and pregnancy (parity, visits, health status, psychosocial problem scale). Variables with statistically significant associations with the dependent variable unadjusted for any other variables, were included in systematic analyses for the best fitting model that included all 4 ethnic groups. Variables that had continuous values (age, schooling, parity) were tested both as continuous variables (linear effects) and in the risk groups commonly found to have disparate birth outcomes (IOM, 1985).

To be included in the final model the potentially confounding variables had to meet goodness of fit criteria: The final model chosen was the ‘best-fit’ model that included the study and race/ethnicity variables and explained the greatest amount of variance in the dependent variable (adjusted  $R^2$ ). Each model was checked so that the final model with race/ethnicity variables explained as much variance as the best model with or without race/ethnicity variables to within 0.5%.

To test Corollaries 3.1 and 4.1 that the effect of the support service assessments on satisfaction with care depend on the association of communication, decision-making and interpersonal style of care, the PIPC variables were added to the models for the hypotheses 3 and 4 and both the effects on the associations of the support service variables with the dependent variable and the associations of the PIPC variables with the dependent variable were then noted. The effects of the main study variable (in this case provider performance of a support service) can be considered indirect when 1) the significant association of the study variable with the dependent variable becomes insignificant as other variables with which they are strongly correlated (in this case PIPC variables) are entered into the model *and* 2) the significant associations of the correlated variables retain their significant associations with the dependent variable. The latter variables have the stronger direct effects with the dependent variables. There is additional evidence for the corollaries if the amount of variation in satisfaction with care that increases when the correlated variables are added to the model, does not increase further when each study variable is introduced to the model.

## **4.0 PRESENTATION OF FINDINGS**

### **4.1 Reliability and Validity of Final Scales**

In constructing the scales no outliers were found and there were minimal missing data because the computer-assisted telephone interview techniques made it easier to capture a response for every question than with other methods, and for the small number of missing values that appeared, women were called again for a response to the question by an experienced interviewer.

#### **4.1.1 Services Scales**



**4.1.1.1 Health Promotion Advice Scale.** The single scale for Performance of Health Promotion Advice did not meet reliability criteria for two of the groups. The internal consistency did not reach 0.70 but was 0.46 for US-born Latinas and 0.56 for Foreign-born Latinas (Table 3.1). The mean scores for the performance scale ranged from a low of 81.4 for Whites to a high 88.8 for Foreign-born Latinas with substantial variability for all groups (standard deviation overall of 22.2 out of a mean score of 85.5 for a coefficient of variation of 26%). Only 1.4% of the scores were at the floor value of zero, but 59.8% of values were at the ceiling value of 100. The skewness statistic was below 2.0 for all groups. The item-total correlations ranged only from 0.14-0.30 for US-born Latinas and from 0.21-0.39 for Foreign-born Latinas. The items in only one area correlated sufficiently ( $>0.30$ ) with the total score for US-born Latinas, only 3 of 5 items met the criterion for Foreign-born Latinas.

**4.1.1.2 Psychosocial Needs Assessment Scale.** The single scale for Performance of Psychosocial Needs Assessment did meet variability and reliability criteria for all groups. The mean scale scores ranged from a low of 35.6 for Whites to a high of 47.2 for Foreign-born Latinas (Table 3.2) with variability for all groups (standard deviation overall of 34.5 out of a mean score of 40.9 for a high coefficient of variation of 88%). Some 21.8% of the scores were at the floor value of zero, and 12.4% of values were at the ceiling value of 100. The skew statistic was well below 2.0 for all ethnic groups. The internal consistency reliability met the criterion of 0.7 or more for all groups. The items in all areas correlated sufficiently ( $>0.30$ ) with the total score, with 6 of the 6 items meeting the criterion for all ethnic groups. The scale for Performance of Psychosocial Needs Assessment was used in the study.

**4.1.1.3 Psychosocial Problems Scale.** The single scale for Psychosocial Problems met all variability and reliability criteria for all ethnic groups but Latinas. The mean scale scores ranged less than 2 points across ethnic groups from a low of 27.4 for Foreign-born Latinas to a high 29.0 for US-born Latinas (Table 3.2) but there was variability within all groups (standard deviation overall of 26.2 out of a mean score of 28.4 for a coefficient of variation of 92%). Some 27.0% of the scores were at the floor value of zero, and 1.9% of values were at the ceiling value of 100. The skewness statistic was well below 2.0 for all ethnic groups. The reliability was lower but approaching the criterion of 0.7 for all groups (0.65 to 0.67). The items in all areas correlated sufficiently ( $>0.30$ ) with the total score, except for Latinas where only 4 of the 6 items met the criterion and for Whites, only 5 of the 6 items. No items were dropped because the scale used in the study for problems included all 6 areas.

#### **4.1.2 Final Prenatal Interpersonal Processes of Care (PIPC) Scales**

**4.1.2.2 Communication Scales.** There were 4 final scales in the Communication domain: Empowerment (4 items), Elicitation of Patient's Problems (4 items), General Clarity (2 items) and Explanations of Processes of Care (2 items) (Table 3.4). Mean scores for the Elicitation of Patient's Problems subscale (91.0-93.7) and the Empowerment subscale (81.9-85.9) were similar between all racial/ethnic groups, while for the Explanations of Processes of Care subscale, mean scores ranged more widely (82.4 to 92.2). U.S. born Latinas reported the lowest mean scores for providers explaining the processes of care. Normality statistics indicated there might be problems in detecting significant associations of the Elicitation of Patient's Problems and the Explanations of Processes of Care scales with performance

variables, as well as the Empowerment scale for African Americans. The skewness statistic is high for both scales (greater than or close to -2 for all groups both scales) indicating that these scales may not be sensitive to change. This was supported by relatively high ceiling effects for these scales in all four groups. Thus, the measures could correlate poorly with other measures in tests of association. Internal consistency reliability criteria, however, were clearly met by the Elicitation of Patient's Problems and Empowerment scales in all four groups (Cronbach's alpha >0.80). For the Explanations of Processes of Care scale, reliability did not meet the criteria for the U.S. born Latinas (0.42) though the alpha correlation is 0.66 for the total sample. The range of item-total correlations meet the criteria (>0.30) for all groups and the entire sample. Since all items for the Explanations of Processes of Care had acceptable item-total correlations for the entire sample and all groups except the U.S. born Latinas, no items were dropped from the scale. The General Clarity scale (2 items) was dropped low reliability and low-item scale correlations in the entire sample and for each ethnic group.

A single composite scale for Communication was constructed by summing the values of the items for the Communications factors (see Table 3.4 for loadings of Communications scales on the single factor; and Table 3.8 for reliability). Mean scores for the scale composed in this way ranged by ethnic group from 87.1 to 90.7, with an overall mean of 88.7. The composite scale is skewed for all ethnic groups (Skewness statistics >2.0) with ceiling effects (21% for U.S. Born Latinos to 39% for African-Americans), but nearly the full range of scores is used. Reliability and content validity criteria are met for all racial/ethnic groups.

**4.1.2.2 Decision-Making Scale.** Since the Decision-making domain has only one factor, its single subscale for the domain (Patient Centered Decision-Making ) is the same as its composite scale for the Decision-Making dimension. The mean score for the Patient Centered Decision-Making scale ranged from 63.2 to 72.1 by race/ethnicity, with Whites reporting lowest scores for providers being patient centered. The Decision-Making scale has some skewness with ceiling effects that range from 19% (U.S. Born Latinos) to 41% (Foreign-Born Latinas). However, both the internal consistency reliability and the item-total correlations are acceptable across racial/ethnic groups. All items in the scale had acceptable item-total correlations for all groups except the U.S. born Latinas (0.27), which was marginally close to 0.30. Thus, no items were dropped from the scale.

**4.1.2.3 Interpersonal Style Scales.** The mean scores for the Friendliness/Courteousness subscale are high but similar across all racial/ethnic groups (94.2-95.1). Mean scores were also similar for the Emotional Support scale (76.6-78.8). Scores are very low for the Perceived Discrimination scale (1.6-5.2 on a 0-100 scale), and U.S. born Latinas had the lowest mean indicating that these women are experiencing virtually no discrimination from their providers. There tends to be a clustering of scores near the high end of the Friendliness and Courteousness scale as indicated by the ceiling effects and the large, but negative skewness statistic. Reliability criteria were met for all racial/ethnic groups. The opposite clustering of scores is observed for the Perceived Discrimination scale, indicated by floor effects and the large, but positive skewness statistic. The Emotional Support scale had a more symmetrical distribution, with no floor or ceiling effects. Reliability and item-total correlations are acceptable in all racial/ethnic groups, with the exception of the U.S. born

Latinos (one of 5 items had a correlation of 0.20). The one item was not dropped from the scale as it was adequate in all other groups.

A single index score for Interpersonal Style was constructed by summing the values for the Interpersonal Style scales (see Table 3.6 for loading of the scales onto the single factor and Table 3.8 for reliability). To have the composite scale consistent in direction, indicating that higher values indicate better interpersonal style, the Discrimination subscale was converted to a Lack of Discrimination subscale (Table 3.7) by subtracting the values of the Discrimination subscale from 100. The normality, reliability and content validity statistics are not affected by such a linear transformation. Mean scores for the Interpersonal Style scale composed in this way ranged by ethnic group from 87.1 to 90.7, with an overall mean of 88.7 (Table 3.8). The composite scale is skewed for African-Americans and Whites (Skewness statistics  $>2.0$ ) with ceiling effects (15.1% to 18.9%) for all but U.S. Born Latinas (4.6%). Reliability criteria are met for all racial/ethnic groups but US-born Latinas (Cronbach's  $\alpha=0.54$ , one of 15 items less than 0.30). The limitations of the scale with respect to US-born Latinas are considered along with the findings and the discussion below.

#### **4.1.3 Final Satisfaction with Care Scale**

The Satisfaction with Care scale met the variability and reliability criteria, with some limitations. The mean scale scores ranged 7.6 points across ethnic groups from a low of 73.0 for US-born Latinas to a high 81.4 for Whites (Table 3.8). There was variability within and across all ethnic groups (standard deviation overall of 22.2 out of a mean score of 78.4 for a coefficient of variation of 28%). None of the scores were at the floor value of zero, and 27.0% of values were at the ceiling value of 100. The skewness statistic was below 2.0 for all ethnic groups. The internal consistency reliability (0.85 overall) met the criteria for all groups except for a borderline value for U.S. born Latinas (0.68). The item-total correlations also met the  $\geq 0.30$  criteria for the entire sample and within each ethnic group with the exception of the global rating of overall satisfaction with prenatal care for US-born Latinas which had a correlation with the total score of 0.28.

#### **4.2 Sample characteristics**

Of the original sampling frame, 363 women completed the survey. The overall survey response rate was 41%. About half of the women (51%) could not be reached because their telephone contact information was incorrect, or they were not reachable despite repeated attempts (at least three at different times of the day and evening). The response rate among those who were contacted was 81%. The response rates for the different ethnic groups could not be determined because the race/ethnicity of all women listed was not known. About three-quarters (78%) of Latinas born outside the US completed the Spanish language version of the survey, and 3% of those born in the US.

The demographic characteristics of the women in the different ethnic groups varied with respect to marital status, years of schooling, and income ( $P<0.04$ ), but not age, parity, prenatal care visits completed or health status (Table 4.1). More of the foreign-born Latinas were married (43.8%) than were women in other groups (28.1% for all the women), and the majority of both African-Americans (63.6%) and US-born Latinas (52.3%) were single. The

majority of the foreign-born Latinas (61.5%) had less than 12 years of school, while the majority of all other groups had 12 years or more (for all women 37.5% had 12 years, 24.8% had more). More than half of the African-American women reported household incomes of less than \$10,000. The comparable number for other groups was closer to one-third (31.4% to 36.5%), but the proportions of women who did not know or refused to answer this question also varied. Latinas were less likely to know or want to report household income. Other characteristics of the women in the different groups were not significantly different. The mean age of the entire group was  $26.6 \pm 5.8$  years. Thirty percent (30.3%) of the women had not had a previous live birth and the average number of prior births was  $1.4 \pm 1.5$ . The mean number of prenatal care visits that the women had had was  $6.2 \pm 4.0$  visits, not including any visits to the Women, Infant and Children Supplemental Food Program. Only 57.3% of women stated that their health status was ‘Excellent’ or ‘Very Good.’

### **4.3 Provider Performance of Support Services**

Women of different ethnic groups reported that their providers varied in giving two of the areas of health promotional advice they received (eating proper foods and weight gain), but not in the other areas (taking vitamins, exercise or secondhand smoke). Unadjusted for differences in other characteristics that might help to explain providers giving health promotion advice, there were significant differences only for giving advice on eating proper foods and weight gain ( $P=0.01$  and  $0.10$  respectively, Table 4.2). After adjustment for covariates however, there were differences that are presented systematically in Appendix D (see in particular Table D2).

As for psychosocial needs assessments, there were no significant differences across ethnic groups in the crude mean number of areas of assessment that women of different ethnic groups reported (Table 4.3). There were significant differences in the proportions of women reporting they had been asked about moodiness or depression ( $P=0.07$ ) and whether they had problems obtaining enough food to eat ( $P=0.04$ ). The ethnic differences in psychosocial needs assessments that have been adjusted for potentially confounding covariates are presented in Appendix D (see in particular Tables D4 and D6).

## **4.4 Association of Support Services with Interpersonal Care**

### **4.4.1 Health Promotion Advice with Interpersonal Care**

Regardless of the area of health promotion or the dimension of interpersonal processes of care, providing health promotion advice was significantly associated with improved interpersonal processes of care ( $P<0.0001$ ) (Table 4.4). The unadjusted associations for the entire sample were significant for all three dimensions: communication, decision-making and interpersonal style. The associated effects were still highly significant ( $P<0.0001$ ) after adjustment for potentially confounding variables (Tables 4.5a, b and c).

Receiving health promotional advice helped to explain from 8.5% to 15.5% of the variance in the quality of provider communication that the women reported depending on the area of

health promotion (Table 4.5a). Advice about secondhand smoke (20.1%) and weight gain (20.7%) contributed 8.5% to 9.1% above the amount explained by the adjustment variables themselves (11.6%). Advice about vitamins (25.2%), eating properly (25.6%) and physical activity (27.1%) contributed from 13.6% to 15.5%.

Receiving health promotional advice helped to explain from 3.7% to 14.3% of the variance in the quality of provider decision-making that the women reported (Table 4.5b). Advice about weight gain (14.8%) contributed only 3.7% above the amount explained by the adjustment variables themselves (11.1%). Advice about eating properly (16.6%), avoiding secondhand smoke (17.1%) and taking vitamins (18.9%) contributed from 5.5% to 7.8%. Physical activity advice (25.4%) contributed the most, 14.3%.

Receiving health promotional advice helped to explain from 5.9% to 13.1% of the variance in the quality of provider interpersonal style that the women reported (Table 4.5c). Advice about weight gain (22.5%) and eating properly (23.0%) contributed 5.9% to 6.4% above the amount explained by the adjustment variables themselves (16.6%). Advice about vitamins (29.7%), physical activity (25.3%) and secondhand smoke (24.6%) contributed from 8.0% to 13.1%.

#### **4.4.2 Psychosocial Assessments with Interpersonal Care**

Providing a psychosocial needs assessment was associated with improved interpersonal processes of care. The extent to which women reported they were asked about problems in areas of mood, money, food, housing, parenting and abuse, the better their reporting of interpersonal care in all dimensions of communication, decision-making and interpersonal style (Table 4.4).

Providing a psychosocial needs assessment had an 11 point mean effect on Communication ( $0.11 \pm 0.02$  SEM;  $P < 0.0001$ ). After adjustment (for ethnic group, health status and psychosocial problems, age and parity) the amount of variance in Communication explained by performance of the psychosocial service was 4.5% (12.0% rose to 16.5% when the term for provider performance of a psychosocial needs assessment was added to the model) (Table 4.6).

Performance of a psychosocial needs assessment had a 30 point mean effect on Decision-making ( $0.30 \pm 0.04$  SEM;  $P < 0.0001$ ) (Table 4.6). The amount of variance in Decision-making explained by performance of the psychosocial service was 11.8% (11.4% rose to 23.2%).

Psychosocial needs assessments had a 10 point mean effect on Interpersonal Style ( $0.10 \pm 0.02$  SEM;  $P < 0.0001$ ). After adjustment the amount of variance in Interpersonal Style explained by performance of the psychosocial service was 8.0% (16.7% rose to 24.7% when the term for provider performance of a psychosocial needs assessment was added to the model) (Table 4.6).

#### **4.5 Association of Support Services and Interpersonal Care with Satisfaction with Care**

#### 4.5.1 Interpersonal Care and Satisfaction with Care

All PIPC scales were significantly associated with satisfaction with care (Table 4.7), though after adjustment for ethnic group, health status, and psychosocial problems the effect of decision-making on satisfaction with care was no longer significant (Table 4.8).

Communication and interpersonal style explained much of the effect of interpersonal processes of care on satisfaction with care. After adjustment, the amount of variance in satisfaction with care explained by the PIPC scales in the model was 33.4%. When the composite PIPC scales for communication, decision-making and interpersonal style were added to the core model with 14.8% of the variance explained, the amount explained rose to 48.2%. In other words, knowing how women report the quality of the communication and interpersonal style of their providers, helped substantially to predict their satisfaction with care.

#### 4.5.2 Association of Health Promotion Advice with Satisfaction with Care

Providing health promotion advice was significantly associated with satisfaction with care, but its effect on satisfaction was explained by its effects on interpersonal processes of care. The associations of health promotional advice in all areas with satisfaction are highly significant (Table 4.7). For satisfaction with care, the smallest effect unadjusted for any other characteristics was for Weight Gain advice which was an 11.1 ( $\pm 2.9$  SEM) point mean increase effect on the 100 point scale ( $P < 0.001$ ). The largest effect was for vitamin advice which was 29.5 points ( $\pm 3.9$  SEM) out of 100 ( $P < 0.0001$ ). The size and significance of the effects of health promotional advice changed little when tested in models adjusted for ethnic group, health status, and psychosocial problems, but were reduced in size and became insignificant (except for vitamin advice) when PIPC scales were included in models of satisfaction.

Once adjusted for interpersonal care, only vitamin advice ( $7.4 \pm 3.4$  SEM;  $P < 0.05$ ) was still significantly associated with satisfaction, yet communication and interpersonal style still had significant direct effects on satisfaction with care (Table 4.8). The large point contributions of health promotion advice to satisfaction in models adjusted for ethnic group, health status and psychosocial problems were reduced to essentially no effect. Little if any additional variance is explained by adding health promotional advice variables. Thus the effect of health promotional advice on satisfaction with care is indirect, receiving health promotional advice is associated with higher quality interpersonal care, which in turn is associated with higher Satisfaction with care.

#### 4.5.3 Association of Psychosocial Assessments with Satisfaction with Care

The findings of the role of psychosocial services in explaining satisfaction with care were similar to those of health promotional services. Providing psychosocial needs assessment was significantly associated with satisfaction with care, but the association was explained by its effects on interpersonal processes of care. The association of the extent of the psychosocial needs assessment with the extent of the women's satisfaction was 17 points on average and highly significant ( $0.17 \pm 0.03$  SEM;  $P < 0.0001$ ; Table 4.11). Once adjusted for potentially confounding variables (ethnic group, health status, psychosocial problems and

interpersonal care), however, the association of performance of the psychosocial assessment was small (2 points) and not significantly associated with satisfaction ( $0.02 \pm 0.06$  SEM), but the interpersonal care variables of communication and interpersonal style were still significantly associated with satisfaction (Table 4.9). In addition, adding psychosocial assessment services to the model did not explain any more variance in satisfaction with care which was largely explained by the interpersonal processes of care variables. Receiving an extensive psychosocial assessment, as with receiving health promotional advice, was associated with higher reported quality of interpersonal care, and that in turn was associated with improved satisfaction with the care. There was not an independent measurable effect of the psychosocial assessment on satisfaction.

## 5.0 DISCUSSION

### 5.1 Conclusions

Race and ethnicity have been cited as potential cultural barriers to best practices of provider-patient processes of care. The findings of this study indicate that health promotion and psychosocial services may help improve interpersonal aspects of care for low income pregnant women. This study provides evidence that African-American, Latino (both US-born and foreign-born) as well as white low income pregnant women who report receiving enhanced prenatal care support services also report higher quality of provider-patient interpersonal care, which in turn explains higher ratings of their satisfaction with their prenatal care. The health promotion and psychosocial services are found to be associated with higher levels of provider-patient communication, patient-centered decision-making and supportive interpersonal style even after adjustment for demographic, obstetric and health characteristics that are also associated with reporting higher levels of interpersonal care and satisfaction with care. Receiving advice in any of five areas of health promotion (taking vitamins, eating properly, appropriate weight gain, appropriate physical activity and avoiding secondhand smoke), is associated with better interpersonal processes of care. The more areas of psychosocial concern that women report they are asked about (mood disorders, money, food, housing, parenting, and domestic abuse), the better are the processes of interpersonal care.

The health promotion and psychosocial service areas investigated in this study are part of the content of prenatal care recommended by the US Public Health Service (PHS, 1989). Some of the health promotion areas have long been part of enhanced services, and are widely accepted as part of health promotion advice such as being advised about taking vitamins and eating proper foods (PHS, 1989; Worthington-Roberts and Klerman, 1990). Other areas of advice have mixed histories, like whether women should be given advice about weight gain or physical activity during pregnancy (IOM, 1990), and some areas are relatively new to prenatal health promotion advice: giving advice about avoiding secondhand smoke. In any case the questions for reporting performance used in this study were not specific to *what* advice should be recommended, but whether women received *any* advice in the specified health promotion areas; and were not specific to what advice or referrals women were given

about psychosocial concerns, but whether women were asked if they had *any* concern in the specified psychosocial areas.

When analyzed separately for the four racial and ethnic groups in the study, the association of all support services with interpersonal processes of care was significant for all groups except for a few selected services and U.S.-born Latinas. Receiving advice about taking vitamins, eating properly and avoiding secondhand smoke were not significantly associated with better communication, decision-making or interpersonal style for US-born Latinas, while receiving advice about weight gain and physical activity were. In the same way, receiving psychosocial assessments was not significantly associated with better communication, decision-making or interpersonal style for US-born Latinas. There are no apparent explanations for these differences within the US-born group, since in related studies of quality of care it is more typically the foreign-born or Spanish speaking Latinos who differ from other groups (Morales et al, 1999).

## 5.2 Limitations of the study

The overall survey response rate in this observational study was low (41%) but compares favorably with rates of 38% found both in the Chicago area prenatal care satisfaction survey with Medicaid pregnant African American and Mexican American women and the national Consumer Assessment of Health Plan Study (CAHPS) survey in Medicaid health plans (Weech-Maldonado et al, 2003). The response rates for the different ethnic groups could not be determined because the race/ethnicity of all women listed and all women contacted was not known and therefore no corrections to generate a representative population (Handler 1998). The study is furthermore limited because non-respondents cannot be characterized since the plan lists of pregnant members did not offer consistent demographic information.

The study was limited by the numbers of women in the four racial groups, particularly white women and US-born Latinas. For one thing, though all measures used met explicit criteria of reliability and validity across the racial and ethnic groups, confirmatory factor analysis of the PIPC scales could not be confirmed separately for each of the four ethnic groups. In particular, there are some reservations about the use of the PIPC index for interpersonal style in regression analyses for US-born Latinas, since it did not meet the reliability and construct validity criteria for the US-born Latina sample.

Another way in which the small sample size for some ethnic groups limited the analysis was that the effects of the support services on interpersonal care and satisfaction with care could not be tested separately in all four ethnic groups. Unadjusted the effects were observed for all four racial and ethnic groups. But in the best-fit adjusted models, some effects varied by ethnic group and therefore comparisons across the four groups became difficult. Of particular concern, while Communication and Interpersonal Style scales help to explain satisfaction with care across all four groups, the effect of Decision-making appeared to differ. Confirmatory factor analysis by ethnic group could have resolved this issue, but needed larger samples.

Finally, corrections for intra-plan clustering of survey respondents corrections could not be made because of the biased distribution of racial and ethnic groups among the plans (Morales



et al, 2001). US-born Latinas were evenly distributed among the four plans (23% to 27%), and Whites primarily among three plans (26% to 39%). African-Americans (57%) and Foreign-born Latinas (79%), however, clustered in two different plans. While some of the differences among ethnic groups could potentially be explained by uncontrolled differences in women of the same groups seen in different plans, it is notable that there was even representation of the single most unique group (US-born Latinas) in all four plans.

### 5.3 Comparison with findings of other studies

While prior studies with low income women of diverse ethnic backgrounds have demonstrated that the *availability* of enhanced prenatal care support services are associated with both greater ratings of satisfaction with care (Handler et al, 1998), and the helpfulness of their prenatal care (Klerman et al, 2001), this is the first study to provide evidence that there are benefits associated with *receiving* support services. Use of the services had been associated with better use of prenatal care visits, and it had been hypothesized that these services would help reduce the incidence of low birthweight infants (Merkatz and Thompson, 1990). While early studies reported that women who received health behavior advice or psychosocial services were at lower risk of delivering a low-birth-weight infant (Kogan et al, 1994; Korenbrot et al, 1995; Homan and Korenbrot, 1998), however, randomized trials in the US, however, failed to produce results indicating that the services were the cause of the better birth outcomes (Alexander and Korenbrot, 1995; Blondel, 1998; Korenbrot and Moss, 2000).

This is the first study to demonstrate the association of health promotion and psychosocial care with reports of quality provider-patient interpersonal care. There are large differences in how people experience, understand and discuss pregnancy with clinicians, especially among people of different racial and ethnic groups. These differences interact with differences in patients' values and attitudes toward clinicians to shape patients health care choices (IOM, 2003). Higher proportions of African-Americans and Latinos compared to whites rate their physician's emphasis on prevention and display of concern, courtesy and respect and more important than anything else (Murray-Garcia et al, 2000). The correlation of spending time in clinical visits on disease prevention and health promotion, and concern for psychosocial problems, may therefore be a contributor to bridging racial or socioeconomic status gaps between providers and patients in Medicaid managed care plans.

Finally it is the first study to demonstrate that better interpersonal care help to explain the association of health promotion or psychosocial services in pregnancy with greater satisfaction with care among low income women of diverse ethnic groups reported by others (Handler et al, 1998; Klerman et al, 2001). The studies using the CAPHS consumer assessment surveys in Medicaid health plans have provided numerous findings for low income African-American, Latino and white plan members concerning their ratings of aspects of care, but not in connection with the breadth of care they reported receiving (Marshall et al, 2001; Morales, 2001; Carlson et al, 2000). The CAPHS survey also only contains two questions relating to pregnancy and no studies have published the findings for women in prenatal care.

#### **5.4 Possible Applications**

The potential application of the findings of this study is in the further implementation of health promotion and psychosocial services in prenatal care to improve both interpersonal dynamics of care, and satisfaction with care of low income women of diverse cultural backgrounds with their providers of care. The rise of consumerism, managed care, the role of the government as a payer of health services and an increasingly competitive health care marketplace have all helped to increase interest in consumer assessments of their health care (Marshall et al, 2001). Patient-centered care, long an objective of Maternal and Child Health, is now more widely recognized as care congruent with and responsive to patients' values, needs and preferences (Gerteis et al, 1993). Furthermore evidence of racial and ethnic disparities in health care have spurred interest in what can be done to bridge cultural gaps and biases in provider-patient communications, participatory decision-making, and interpersonal care (Cooper and Roter, 2002). It has been pointed out that providing direct services designed to meet disparate cultural needs is one of three broad strategic approaches through which multicultural care can be enhanced (Cooper and Roter, 2002). Enhanced prenatal support services have the desired effects of such direct services.

The findings of this study demonstrate that enhanced prenatal services can improve women's reports of quality of care in ways that matter to Medicaid managed care plans and their providers. We recommend that Medicaid health plans, and providers of obstetric care in Medicaid health plans continue to offer support services of prenatal care where they already exist, and start to offer the services to women receiving prenatal care at sites where they do not already exist. We furthermore recommend that the patient centeredness and cultural competence of the services and their providers be priorities in the determination of the quality of the services.

#### **5.5 Policy Implications**

Currently massive cuts in Medicaid federal and state budgets and the rising enrollment of pregnant women in Medicaid managed care plans have the potential to reduce the extent to which benefits like enhanced prenatal care support services are available in Medicaid programs (Kaiser Commission, 2003). It is important therefore to disseminate evidence that women who receive support services also report better provider-patient quality of care and in turn are more satisfied with their providers. While providing support services may cost additional resources to the Medicaid program, the plans and the providers, they stand to benefit when plan members are more satisfied with the care they receive. When satisfied, plan members are more likely to use the plan and provider again, and recommend the plan and provider to others.

#### **5.6 Suggestions for Further Research**

Intervention studies are needed to determine whether health promotion and psychosocial services produced the higher reported levels of interpersonal processes of care. The reduction in the association of the services with satisfaction with care when the measures of interpersonal processes of care are added to models lends considerable weight to the inference that the relationship between the services and interpersonal processes of care is

causative. Still randomized, longitudinal or otherwise controlled intervention studies are needed to demonstrate that the services improve the quality of interpersonal processes. In particular it is important to determine whether the race and ethnicity of the providers of the support services influences the effect of the services.

Further study is needed with the measure of prenatal interpersonal processes of care (PIPC) using larger samples to test the measurement properties of the PIPC in other samples and within each ethnic group. In particular, further investigation of the differences in how interpersonal processes are related to supportive services between US-born and foreign born Latinas needs to be understood better.

Better understanding is needed of intermediary variables producing the effects of the services on the interpersonal processes of care. Questions that need to be answered include, How might health promotion advice improve provider-patient interpersonal care? One hypothesis would be that discussing healthy behaviors with women may help providers to overcome transmitting the impression that they don't believe certain groups of women can live healthy lifestyles, or can change their behaviors. A clue to how psychosocial services may produce the effect on interpersonal care is available from focus group research (Wilkinson and Calvo, 1999). In focus groups about prenatal psychosocial services, African-American and Latina women who received psychosocial services reported that the service provider helped reduce stress. In general medical care it has been found that visits that include more patient questions and provider information giving, a higher proportion of psychosocial and emotional statements relative to biomedical statements and less verbal dominance by providers are considered more patient-centered (Cooper and Roter, 2002). These potential intermediary factors deserve further investigation.

Additionally, further research is needed on other potential beneficial outcomes of the support services such as improving compliance with behavioral advice. In our own efforts we found that the health behaviors need to be investigated separately because of the variety of factors that explain to what degree women fully comply with recommended health behaviors in pregnancy (see Appendix F) (Drinkard et al, 2001). But improving healthy behaviors, whether directly by giving advice that women want to follow, or by reducing stressful conditions that interfere with healthy behaviors, remains an important goal of enhanced prenatal care that is important to investigate.

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Appendix D, Table D1. Unadjusted odds ratios and their confidence intervals for provider performance of health promotion advice by demographic group.

	Provider Performance of Health Promotion Advice									
	Vitamins		Eating		Weight Gain		Activity		Secondhand Smoke	
	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )
<b>Race-Ethnicity</b>										
African-American	2.33	( 0.82,6.66 )	0.72	( 0.14,3.65 )	2.42	( 1.12,5.25 )*	1.17	( 0.62,2.20 )	0.84	( 0.41,1.73 )
Latina- Foreign Born	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )
Latina- US Born	2.20	( 0.67,7.25 )	0.98	( 0.16,6.06 )	2.58	( 1.08,5.25 )*	1.04	( 0.48,2.25 )	0.80	( 0.33,1.95 )
White	1.10	( 0.29,4.27 )	5.17	( 1.37,19.5 )*	2.15	( 0.89,5.12 )	1.52	( 0.74,3.11 )	1.60	( 0.75,3.45 )
<b>Age</b>										
Less than 20 years	1.82	( 0.61,5.4 )	1.15	( 0.31,4.28 )	0.98	( 0.42,2.27 )	1.66	( 0.83,3.30 )	0.66	( 0.26,1.65 )
20 to 29	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )
30 years or More	2.55	( 1.1,5.7 )**	0.72	( 0.22,2.32 )	1.72	( 0.96,3.05 ) <sup>0.07</sup>	1.35	( 0.78,2.35 )	1.07	( 0.58,1.98 )
<b>Parity</b>										
No previous births	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )
One or More	1.90	( 0.76,4.77 )	3.65	( 0.82,16.1 )	1.86	( 0.99,3.52 ) <sup>0.06</sup>	1.56	( 0.89,2.73 )	1.41	( 0.75,2.65 )
<b>Health Status</b>										
Excellent,Very Good	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )
Good, Fair, Poor	2.65	( 1.23,5.72 )***	2.83	( 1.04,7.70 )*	1.93	( 1.13,3.28 )**	2.51	( 1.53,4.13 )**	2.21	( 1.27,3.88 )*
<b>Prenatal Care Visits</b>										
2 or 3	1.73	( 0.72,4.13 )	2.96	( 1.06,8.26 )*	1.98	( 1.03,3.79 )*	0.88	( 0.46,1.67 )	2.53	( 1.29,4.99 )*
4 or 5	0.88	( 0.35,2.20 )	0.40	( 0.08,1.98 )	1.21	( 0.64,2.27 )	1.02	( 0.58,1.77 )	1.37	( 0.70,2.68 )
6 or more	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

Appendix D, Table D2. Adjusted odds ratios and their confidence intervals for performance of health promotion advice by demographic group.

	Provider Performance of Health Promotion Advice									
	Vitamins		Eating		Weight Gain++		Activity		Secondhand Smoke	
	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )
<b>Race-Ethnicity</b>										
African-American	3.1	( 1.3,7.8 )***	reference+		0.35	( 0.16,0.77 )***	0.81	( 0.46,1.4 )	reference+	
Latina- Foreign Born		reference+	reference+			reference		reference+	reference+	
Latina- US Born	2.7	( 0.91,7.8 ) <sup>0.07</sup>	reference+		0.32	( 0.13,0.78 )***		reference+	reference+	
White		reference+	0.17	( 0.06,0.47 ) <sup>^</sup>	0.43	( 0.18,1.1 ) <sup>0.07</sup>	0.65	( 0.34,1.2 )	0.59	( 0.31,1.1 )
<b>Age</b>										
Less than 20 years		reference+				reference+	0.49	( 0.23, 1.0 ) <sup>0.06</sup>	1.8	( 0.76,4.5 )
20 to 29		reference+				reference+		reference+	reference+	
30 years or More	1.6	( 0.61,4.1 )			0.60	( 0.33, 1.1 ) <sup>0.09</sup>		reference+	reference+	
<b>Parity</b>										
No previous births				reference		reference		reference		
One or More			0.26	( 0.05, 1.2 ) <sup>0.09</sup>	0.65	( 0.33,1.3 )	0.60	( 0.32, 1.1 ) <sup>0.10</sup>		
<b>Health Status</b>										
Excellent,Very Good		reference		reference		reference		reference		
Good, Fair, Poor	2.9	( 1.3, 6.4 )***	0.40	( 0.14, 1.2 ) <sup>0.10</sup>	0.49	( 0.28, 0.86 )***	0.41	( 0.25, 0.68 ) <sup>^</sup>	0.42	( 0.24, 0.75 )***
<b>Prenatal Care Visits</b>										
2 or 3	1.7	( 0.71,4.5 )	0.26	( 0.10, 0.73 )***	0.51	( 0.28, 0.94 )*			0.36	( 0.18, 0.72 ) <sup>^^</sup>
4 or 5		reference+		reference+		reference+			0.65	( 0.32, 1.3 )
6 or more		reference+		reference+		reference+				reference+

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

+ 'Best fit' models isolated the characteristic subgroups that were significantly different from the others for every characteristic, when this occurs the reference group is broadened to additional subgroups.

++N=334 for this sample see Table 3.5.1.

**Appendix D, Table D3. Unadjusted means and standard errors of the mean for the scales of psychosocial needs assessment by demographic group.**

Psychosocial Needs Assessment Scales						
Demographic	Performance Scale		Importance Scale		Problems Scale	
	Difference	( S.E. )	Difference	( S.E. )	Difference	( S.E. )
<b>Race-Ethnicity</b>						
African-American	-8.1	( 4.6 ) <sup>.08</sup>	3.5	( 1.6 )*	1.1	( 3.6 )
Latina- Foreign Born	reference		reference		reference	
Latina- US Born	-11.6	( 5.5 )*	3.4	( 2.0 ) <sup>.08</sup>	1.4	( 4.1 )
White	-7.0	( 5.4 )	1.9	( 1.9 )	1.5	( 4.2 )
<b>Age</b>						
Less than 20 years	-0.4	( 5.4 )	0.8	( 1.9 )	3.6	( 4.1 )
20 to 29	reference		reference		reference	
30 years or More	-6.4	( 4.1 )	0.03	( 1.5 )	4.1	( 3.1 )
Age (in years)	-0.5	( 0.3 )	-0.01	( 0.11 )	0.3	( 0.2 )
<b>Parity</b>						
No previous births	reference		reference		reference	
One or More	-8.8	( 3.9 )*	-3.9	( 1.4 ) <sup>^^</sup>	-0.8	( 3.0 )
<b>Health Status</b>						
Excellent,Very Good	reference		reference		reference	
Good, Fair, Poor	-9.6	( 3.6 ) <sup>***</sup>	-0.8	( 1.3 )	16.7	( 2.6 ) <sup>^^^</sup>
<b>Prenatal Care Visits</b>						
2 or 3	-11.3	( 4.7 )*	1.1	( 1.7 )	1.7	( 3.6 )
4 or 5	-2.9	( 4.1 )	1.6	( 1.5 )	-2.7	( 3.2 )
6 or more	reference		reference		reference	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

**Appendix D, Table D4. Adjusted means and standard errors of the mean for the scales of psychosocial needs assessment.**

Psychosocial Needs Assessment Scales						
Demographic	Performance Scale		Importance Scale		Problems Scale	
	Difference	( S.E. )	Difference	( S.E. )	Difference	( S.E. )
<b>Race-Ethnicity</b>						
African-American	-9.7	( 4.5 ) <sup>*</sup>	3.4	( 1.6 ) <sup>*</sup>	3.7	( 3.6 )
Latina- Foreign Born	reference		reference		reference	
Latina- US Born	-13.7	( 5.4 ) <sup>**</sup>	2.9	( 2.0 )	3.7	( 4.0 )
White	-7.4	( 5.3 )	1.5	( 1.9 )	1.9	( 3.9 )
<b>Age</b>						
Less than 20 years						
20 to 29						
30 years or More						
Age (in years)						
<b>Parity</b>						
No previous births	reference		reference		reference	
One or More	-7.5	( 3.9 ) <sup>*</sup>	-3.8	( 1.4 ) <sup>***</sup>	-3.6	( 2.9 )
<b>Health Status</b>						
Excellent, Very Good	reference		reference		reference	
Good, Fair, Poor	-10.0	( 3.6 ) <sup>***</sup>	0.1	( 1.3 )	17.7	( 2.7 ) <sup>^^</sup>
<b>Prenatal Care Visits</b>						
2 or 3	-9.9	( 4.3 ) <sup>*</sup>	0.6	( 1.5 )	3.5	( 3.2 )
4 or 5	reference+		reference+		reference+	
6 or more	reference+		reference+		reference+	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

Appendix D, Table D5. Unadjusted odds ratios and confidence intervals for performance psychosocial needs assessment by demographics.

	Provider Performance of Psychosocial Needs Assessment													
	Mood		Money		Food		Housing		Parenting		Abuse			
	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )	Odds Ratio	( CI )		
<b>Race-Ethnicity</b>														
African-American	0.74	( 0.42,1.32 )	1.68	( 0.90,3.12 ) <sup>10</sup>	2.08	( 1.20,3.62 ) <sup>^</sup>	0.60	( 0.31,1.17 )	0.86	( 0.51,1.46 )	1.64	( 0.97,2.79 ) <sup>l</sup>		
Latina- Foreign Born	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )		
Latina- US Born	0.49	( 0.25,0.96 ) <sup>*</sup>	1.30	( 0.63,2.70 )	1.83	( 0.94,3.54 ) <sup>.07</sup>	0.52	( 0.24,1.12 ) <sup>10</sup>	1.14	( 0.60,2.16 )	1.81	( 0.96,3.42 ) <sup>l</sup>		
White	0.47	( 0.24,0.90 ) <sup>**</sup>	0.98	( 0.49,1.94 )	1.15	( 0.62,2.1 )	0.80	( 0.36,1.77 )	1.22	( 0.65,2.27 )	1.44	( 0.78,2.68 )		
<b>Age</b>														
Less than 20 years	1.00	( 0.52,1.89 )	0.81	( 0.39,1.69 )	1.46	( 0.78,2.72 )	0.81	( 0.41,1.60 )	0.97	( 0.52,1.80 )	0.91	( 0.49,1.69 )		
20 to 29	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )		
30 years or More	1.06	( 0.65,1.73 )	0.77	( 0.44,1.35 )	0.66	( 0.40,1.11 )	0.62	( 0.36,1.07 ) <sup>.09</sup>	0.56	( 0.34,0.90 ) <sup>**</sup>	0.92	( 0.57,1.47 )		
<b>Parity</b>														
No previous births	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )		
One or More	0.74	( 0.46,1.20 )	0.89	( 0.53,1.50 )	0.55	( 0.34,0.86 ) <sup>***</sup>	0.74	( 0.46,1.20 )	0.51	( 0.32,0.80 ) <sup>***</sup>	0.78	( 0.50,1.21 )		
<b>Health Status</b>														
Excellent,Very Good	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )		
Good, Fair, Poor	0.59	( 0.38,0.91 ) <sup>***</sup>	0.64	( 0.39,1.05 ) <sup>*</sup>	0.70	( 0.45,1.09 )	0.60	( 0.37,0.96 ) <sup>*</sup>	0.60	( 0.39,0.91 ) <sup>**</sup>	0.78	( 0.52,1.19 )		
<b>Prenatal Care Visits</b>														
2 or 3	0.68	( 0.39,1.18 )	1.12	( 0.60,2.11 )	0.63	( 0.35,1.12 )	0.42	( 0.22,0.80 ) <sup>**</sup>	0.43	( 0.25,0.76 ) <sup>***</sup>	0.57	( 0.33,0.98 ) <sup>*</sup>		
4 or 5	1.05	( 0.64,1.74 )	1.29	( 0.75,2.24 )	0.96	( 0.59,1.56 )	0.66	( 0.39,1.10 )	0.71	( 0.44,1.14 )	1.00	( reference )		
6 or more	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	0.84	( 0.52,1.35 )		
<b>Psychosocial Problems</b>														
None in this area	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )		
One or more	0.68	( 0.44,1.04 ) <sup>.08</sup>	0.82	( 0.50,1.36 )	0.62	( 0.36,1.08 )	0.75	( 0.43,1.32 )	0.87	( 0.52,1.46 )	3.35	( 1.74,6.45 ) <sup>l</sup>		

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

Appendix D, Table D6. Adjusted odds ratios and confidence intervals for performance of psychosocial needs assessment.

	Provider Performance of Psychosocial Needs Assessment											
	Mood		Money		Food		Housing		Parenting		Abuse	
	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )	Adj Odds Ratio	( CI )
<b>Race-Ethnicity</b>												
African-American	0.66	( 0.36,1.18 )	0.54	( 0.29,1.02 ) <sup>0.06</sup>	0.42	( 0.24,0.74 ) <sup>***</sup>	0.59	( 0.33,1.06 ) <sup>0.08</sup>	1.00	( reference ) <sup>+</sup>	0.56	( 0.32,0.97 )
Latina- Foreign Born	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference ) <sup>+</sup>	1.00	( reference )
Latina- US Born	0.45	( 0.23,0.88 ) <sup>**</sup>	0.69	( 0.33,1.45 )	0.46	( 0.23,0.91 ) <sup>*</sup>	0.36	( 0.16,0.77 ) <sup>***</sup>	0.77	( 0.43,1.36 )	0.54	( 0.28,1.05 )
White	0.45	( 0.23,0.87 ) <sup>**</sup>	0.97	( 0.49,1.94 )	0.82	( 0.43,1.56 )	0.67	( 0.34,1.33 )	1.00	( reference ) <sup>+</sup>	0.73	( 0.38,1.37 )
<b>Age</b>												
Less than 20 years			1.00	( reference ) <sup>+</sup>	1.00	( reference ) <sup>+</sup>	1.00	( reference ) <sup>+</sup>	1.00	( reference ) <sup>+</sup>		
20 to 29			1.00	( reference ) <sup>+</sup>	1.00	( reference ) <sup>+</sup>	1.00	( reference ) <sup>+</sup>	1.00	( reference ) <sup>+</sup>		
30 years or More			0.81	( 0.46, 1.41 )	0.63	( 0.37, 1.07 ) <sup>0.09</sup>	0.60	( 0.34, 1.05 ) <sup>0.07</sup>	0.59	( 0.36,0.98 ) <sup>*</sup>		
<b>Parity</b>												
No previous births					1.00	( reference )	1.00	( reference )	1.00	( reference )		
One or More					0.62	( 0.38, 1.01 ) <sup>0.06</sup>	0.87	( 0.52, 1.46 )	0.60	( 0.37, 0.97 ) <sup>*</sup>		
<b>Health Status</b>												
Excellent,Very Good	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )	1.00	( reference )
Good, Fair, Poor	0.58	( 0.37,0.92 ) <sup>**</sup>	0.60	( 0.36, 1.00 ) <sup>*</sup>	0.68	( 0.43, 1.08 )	0.54	( 0.32, 0.88 ) <sup>^</sup>	0.61	( 0.39, 0.96 ) <sup>*</sup>	0.68	( 0.44,1.05 )
<b>Prenatal Care Visits</b>												
2 or 3	0.69	( 0.41,1.16 )			0.59	( 0.34, 1.05 ) <sup>0.07</sup>	0.38	( 0.20, 0.74 ) <sup>***</sup>	0.39	( 0.22, 0.70 ) <sup>^^^</sup>	0.61	( 0.36,1.04 )
4 or 5	1.00	( reference ) <sup>+</sup>			1.00	( reference ) <sup>+</sup>	0.59	( 0.34, 1.00 ) <sup>*</sup>	0.64	( 0.39, 1.05 ) <sup>0.08</sup>	1.00	( reference )
6 or more	1.00	( reference ) <sup>+</sup>			1.00	( reference ) <sup>+</sup>	1.00	( reference )	1.00	( reference )	1.00	( reference )
<b>Psychosocial Problems</b>												
No problem	1.00	( reference )									1.00	( reference )
One or more	0.75	( 0.48,1.19 )									3.45	( 1.77,6.72 )

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

+N=334 for this sample see Table 3.5.1

++Without Race and ethnic groups, and only age and education in the model, 1.9% of variance was explained.

## **Appendix E**

### **Importance of Support Services: Ratings by Ethnic Group**



## **Appendix E**

### **Importance of Support Services: Ratings in Different Ethnic Groups**

**Purpose:** To determine whether women of different ethnic groups varied in their rating of the importance of health promotion and psychosocial services. Tradition and training have led health professionals to believe that prenatal health promotion advice and psychosocial support services are important and effective for pregnant women, even women of diverse cultural backgrounds. Because of potential cultural differences in the importance with which women viewed promotional health promotional advice given during prenatal care, we first wanted to determine how women of different ethnic groups rated the importance of health promotion and psychosocial support services.

**Summary of Findings.** There were differences among the ethnic groups in the ratings of importance of health promotion and psychosocial services, but the ratings of the importance of neither the health promotion nor psychosocial services had any significant affect on the association of the services with improved interpersonal care and therefore were not included in the main text of the report.

**Importance of Health Promotion Scale.** For each of the 5 areas of advice we asked the women to rate how important they thought it was that pregnant women be given such advice in a prenatal care visit. The responses were recorded in a Likert scale. For questions and responses see Appendix B. The scale value for reliability testing was the mean response per person for all 5 areas (Table E1).

The single scale for rating Importance of Health Promotion Advice did meet variability and reliability criteria. The mean scores ranged from a low of 82.5 for Foreign-born Latinas to a high 87.4 for US-born Latinas (Table E1) with variability for all groups (standard deviation overall of 9.9 out of a mean score of 84.7 for a coefficient of variation of 12%). None of the scores were at the floor value of zero, and only 16.3% of values were at the ceiling value of 100. The skew statistic was well below 2.0 for all ethnic groups. The internal consistency reliability (Cronbach's alpha) met the criteria of 0.7 or more for all groups (rounding 0.69 for US-born Latinas to 0.7). The items in all areas correlated sufficiently ( $>0.30$ ), with 5 of the 5 items meeting the criterion for all ethnic groups. The score for Importance of Advice in Health Promotion was used in the study.

**Importance of Psychosocial Needs Assessment Scale.** Because of cultural differences in the importance of receiving advice for psychosocial problems from medical providers, for each of the 6 areas of psychosocial need, we asked the women how important they thought it was that pregnant women be given such advice in a prenatal care visit. The responses were recorded in a Likert scale. For questions and responses see Appendix C. The scale value for reliability testing was the mean response per person for all 6 areas (Table E1).

The single scale for Importance of Psychosocial Needs Assessment did meet variability and reliability criteria. The mean scale scores ranged only 2.5 points among ethnic groups from a low of 79.4 for Foreign-born Latinas to a high 82.9 for African-Americans (Table E1) but there was variability within all groups (standard deviation overall of 12.2 out of a mean score of 81.7 for a coefficient of variation of 15%). None of

the scores were at the floor value of zero, and 18.2% of values were at the ceiling value of 100. The skew statistic was well below 2.0 for all ethnic groups. The internal consistency reliability (Cronbach's alpha) met the criteria of 0.7 or more for all groups. The items in all areas correlated sufficiently ( $>0.30$ ) with the total score, with 6 of the 6 items meeting the criterion for all ethnic groups. The score for Performance of Psychosocial Needs Assessment was used in the study.

### **Importance of Health Promotion Advice in Different Ethnic Groups**

Women were asked whether they thought that it was important that pregnant women be given advice at a prenatal care visit about each of five areas of health promotion recommended for all pregnant women: taking vitamins, eating, weight gain, physical activity and avoiding secondhand smoke. The importance of health promotional advice in the five areas studied was found to vary among the ethnic groups. The scale that combines all five areas indicates that US-born Latinas had significantly higher ratings of the importance of health promotion advice than foreign-born Latinas (Table E2) even after adjustment for the independent contribution of other demographic variables (Table E3). The adjusted mean rating for US-born Latinas was 4.3 points higher (with 95% confidence interval [CI] of 1.1 to 7.5;  $P<0.02$ ) (Table E4). Though the ratings were also higher than were given by African-American women (1.9 points higher than non-US born Latinas) and White women (0.8 points higher than non-US born Latinas), the confidence intervals of these ratings overlapped with those of non-US-born Latinas, and were not statistically different ( $P>0.10$ ). Mean ratings were higher for US-born Latinas than for other ethnic groups in all five areas of health promotion, and the ratings were significantly higher in three areas: vitamins ( $P<0.0001$ ), eating ( $P=0.06$ ) and secondhand smoke ( $P<0.02$ ). For the other ethnic groups, ratings were only significantly higher for the importance of giving women advice about vitamins. Only White women rated the importance of advice in some areas lower than non-US-born Latinas (importance of weight gain and secondhand smoking advice), and only in the area of the importance of weight gain advice did the lower rating approach statistical significance.

**Importance of Vitamins Advice.** Advice on taking vitamins in pregnancy was least important to Latinas born outside the United States (unadjusted mean 93.5 +/- SD 11.9). US-born Latinas on the other hand had highest ratings of the importance of health promotion advice, with a mean adjusted rating 8.5 points higher out of a range of 100 possible points than foreign-born Latinas and with a 95% confidence interval of 4.4 to 12.6 points higher ( $P<0.0001$ ). African-American women also rated the importance of taking vitamins higher than foreign-born Latinas (6.6 points, CI 3.1 to 10.1;  $P<0.0001$ ) as did White women (6.3 points, CI 2.2 to 10.3;  $P<0.0005$ ).

When the independent contributions of the demographic variables to the importance of giving advice about vitamins were analyzed, the variables of age, marital status and the number of prenatal care visits also helped to explain women's ratings. Women less than 20 years old, regardless of ethnic group, gave lower ratings to the importance of advice about vitamins (-3.7 points, CI -7.6 to 0.1;  $P=0.06$ ). Women 30 years old or older gave lower ratings as well (-3.2 points, CI -6.1 to -0.3;  $P=0.03$ ). Women living with partners as if they were married gave higher ratings than single and married women (2.9 points, CI -0.05 to 5.8;  $P=0.05$ ). Women who had had only 2 or 3 visits gave lower ratings than

did women who had 6 or more visits (-3.4 points, CI -6.7 to -0.05; P=0.05), with women who had 4 or 5 visits falling in between the two groups.

**Importance of Eating Advice.** There was little difference in the ratings of the importance of advice on eating nutritious foods in frequent 'meals' without long hours without food in between 'meals.' US-born Latinas had highest ratings of the importance of the health promotion eating advice with a mean adjusted rating 4.2 points higher (CI -0.1, 8.5; P=0.06) than that of all other ethnic groups combined (not shown in tables). But when the four ethnic groups are included individually in the adjustment models (Table E4), the difference of US-born Latinas from non-US born Latinas (the reference group) is only 3.2 points higher (CI -1.1 to 7.5) and is not statistically significant (P>0.10).

When the independent contributions of the demographic variables to the importance of giving advice about eating during pregnancy, the variables of age, parity, marital status, education and the number of prenatal care visits also helped to explain women's ratings. Women less than 20 years old, gave lower ratings to the importance of advice about eating than women of any other age (-4.4 points, CI -8.6 to -0.1; P=0.04). Women having their first child gave lower ratings to the importance of advice about eating (-3.2 points, CI -6.3 to 0.0; P=0.05). The contributions made by marital status, education and prenatal care visits did not reach the criterion for statistical significance (P=<0.10), though the variables improved the amount of variance explained by the adjustment model and were included in the final adjustment model.

**Importance of Weight Gain Advice.** White women gave lower ratings than did foreign-born Latinas to the importance of giving advice about weight gain during pregnancy. The mean adjusted rating was 4.7 points lower for White women with confidence limits of 0.5 points higher to 9.8 points lower (P=0.08). Independent contributions of age, parity, marital status and prenatal care visits also helped to explain women's ratings. Teenage women and women having their first child gave significantly lower ratings. Women less than 20 years old, gave lower ratings to the importance of advice about weight gain than women of any other age (-6.0 points, CI -11.3 to -0.7; P=0.03). Women having their first child gave lower ratings to the importance of advice about eating (-3.2 points, CI -8.6 to -0.6; P=0.02). Women who had 4 to 5 visits gave higher mean ratings than women with either less or more visits (3.5 points, CI -0.3 to 7.1; P=0.06). The contribution made by single marital status did not reach the criterion for statistical significance (P=<0.10), though the variable improved the amount of variance explained by the adjustment model.

**Importance of Physical Activity Advice.** There were no significant differences in the ratings of the importance of giving advice about physical activity during pregnancy among the four ethnic groups. Independent contributions of age, parity, marital status, education and prenatal care visits helped to explain women's ratings, though for only two variables were the contributions statistically significant. Women who were having their first child though, had mean adjusted ratings that were 3.7 points lower (CI -0.4 to -7.0; P=0.03). For each year of schooling a woman had, the mean adjusted rating was 0.8 points higher (CI 0.2 to 1.3; P=0.007).

**Importance of Secondhand Smoke Advice.** US-born Latinas gave higher ratings to the importance of giving advice about avoiding secondhand smoke. US-born Latinas had highest ratings of the importance of health promotion advice with a mean adjusted rating 5.0 points higher (CI 0.2 to 9.8; P=0.04). The variables of age, parity, marital status,

education and prenatal care visits all helped to explain women's ratings. Statistically significant were the lower ratings of women less than 20 years of age (-5.2, CI -9.9 to -0.5; P=0.03), and 30 years of age or more (-4.4 CI -1.0 to -7.9; P=0.01), and higher ratings of single women compared to married women (3.2 CI -0.6 to 7.0; P=0.10).

### **Importance of Psychosocial Needs Assessment in Different Ethnic Groups**

Women were asked how important it was for pregnant women to be given advice at a prenatal care visit about how to get help with a series of potential psychosocial problems: depression ("stress, depression, blues or moodiness"), not having enough money, not having enough food, housing ("landlord, eviction," etc), parenting (with becoming a parent or with current children), or being hurt by someone (physically or mentally) (see Appendices for survey specific questions). The importance of advice about getting psychosocial help in the six areas was not found to vary significantly among the ethnic groups (Table E1). The mean rating for the scale that combines all six areas ranged only from 79.4 for non-US born Latinas to 82.9 for African Americans (out of 100 points) (Table E2). When unadjusted, the mean total score was  $3.5 \pm 1.6$  (Mean  $\pm$  Std Dev) points higher for African-Americans than for non-US born Latinas ( $P \leq 0.05$ ) and was  $3.4 \pm 1.6$  points higher for US-born Latinas ( $P=0.08$ ; Table E5). But when the rating was adjusted for differences in demographic and obstetric characteristics the adjusted means differed by less than 2 points and were not significant (Table E6,  $P > 0.10$ ).

**Importance of a Depression Needs Assessment.** The ratings that women gave on the importance of receiving advice on getting help with depression in prenatal care ranged from 81.0 by foreign-born Latinas to 86.2 by US-born Latinas ( $P=0.11$ ; Table E1). The differences among mean scores for the ethnic groups were not significantly different in regression analyses either prior to or after adjustment for other characteristics. Parity, marital status and years of schooling all had significant independent effects on the rating of importance prior to adjustment (Table E5). Marital status and years of schooling had significant effects even after adjustment (Table E6). Women who were living together with a partner rated the importance of advice on depression 4.4 (CI 0.6,8.1) points higher than married women ( $P \leq 0.02$ ), and single women rated the importance 3.6 (0.2,7.1) points higher ( $P \leq 0.05$ ). For every year of schooling they had, women rated the importance of advice on depression 0.7 (0.2,1.2) points higher ( $P \leq 0.01$ ).

**Importance of a Money Needs Assessment.** The ratings that women gave on the importance of receiving advice on getting help with money problems in prenatal care ranged from 73.6 by Whites to 79.5 by African Americans ( $P=0.21$ ; Table E1). The differences in mean ratings, given by Whites were significantly lower than Whites before they were adjusted for characteristics of the two groups that differed (Table E5). After adjustment for differences in demographic and obstetric characteristics however, there

were no significant differences in mean ratings given by the ethnic groups (Table E6). The characteristic that had a significant effect on the rating in the fully adjusted model was whether or not the women had already had at least one child. Women who had had at least one child rated the importance of advice on getting financial help -5.3 (-6.3,0.0) points lower than those who had not had a child previously ( $P \leq 0.02$ ).

**Importance of a Food Needs Assessment.** The ratings that women gave on the importance of receiving advice about how to get help with getting enough food to eat ranged from 78.4 by foreign-born Latinas to 83.6 by Whites ( $P=0.08$ ; Table E1). The differences in mean ratings, however, were not significantly different for any of the ethnic groups whether or not they were adjusted for other characteristics of the groups (Tables E5 and E6). Parity and years of schooling had effects on the rating even after adjustment for other characteristics (Table E6). Women who had already had a child rated the importance of the advice -3.6 (-7.1,-0.6) points lower ( $P \leq 0.05$ ). For every year of schooling a woman had, the average rating was 0.6 (0.0,1.2) points higher ( $P=0.06$ ).

**Importance of a Housing Needs Assessment.** The ratings that women gave on the importance of receiving advice on how to get help with housing problems such as rent, eviction, landlord, getting basic repairs ranged from 75.4 by Whites to 80.9 by African Americans ( $P=0.21$ ; Table E1). Differences in mean ratings, however, were not significantly different for any of the ethnic groups whether or not they were adjusted for other characteristics of the groups (Tables E5 and E6). The only characteristic with a significant effect on the rating of importance of the advice on help with housing problems was parity (Table E6). Women who had already had a child rated the importance of the advice -5.0 (-9.1,0.9) points lower ( $P \leq 0.02$ ).

**Importance of Parenting Needs Assessment.** The ratings that women gave on the importance of receiving advice at a prenatal care visit about how to get help with concerns about becoming a parent, or with the parenting of children they already had, ranged from 78.6 by foreign-born Latinas to 83.5 by African Americans ( $P=0.08$ ; Table E1). Differences in mean ratings, however, were not significantly different for any of the ethnic groups whether or not they were adjusted for other characteristics of the groups (Tables E5 and E6). The only characteristic with a significant effect on the rating of importance of getting help with parenting was schooling (Table M.4). For every year of schooling a woman had, the average rating was one (1.0; -0.4,1.6) point higher ( $P \leq 0.001$ ).

**Importance of an Abuse Protection Needs Assessment.** Women varied significantly by ethnic group in ratings they gave on the importance of receiving advice at a prenatal care visit about how to get help with concerns with someone hurting them (emotionally, physically or sexually). The ratings ranged from 83.1 for to 88.2 for Whites ( $P=0.04$ ; Table E1). Mean ratings, however, were not significantly different for any of the ethnic groups whether or not they were adjusted for other characteristics of the groups (Tables E5 and E6). The only characteristic with a significant effect on the rating of importance of getting help with abuse was schooling (Table M.4). For every year of schooling a woman had, the average rating was a half point (0.5; 0.0,1.1) higher ( $P=0.06$ ).

**Appendix E, Table E1 Importance ratings of health promotion advice and psychosocial assessments by race/ethnicity.**

	African-American			Latinas			Whites			P Value*	
	N=132			Foreign-Born		US-Born		N=70			
	Mean	( S.D. )		Mean	( S.D. )	Mean	( S.D. )	Mean	( S.D. )		
<b>Health Promotion Advice Importance Rating</b>											
Vitamins	92.0	( 12.5 )		84.9	( 12.8 )	93.5	( 11.9 )	91.8	( 12.6 )	0.0001	
Proper Foods	86.0	( 13.2 )		83.9	( 12.6 )	88.1	( 13.3 )	87.5	( 14.0 )	0.17	
Weight Gain	79.7	( 18.3 )		79.7	( 13.7 )	80.8	( 15.2 )	74.6	( 18.3 )	0.12	
Physical Activity	80.9	( 15.1 )		79.2	( 10.7 )	83.5	( 12.7 )	82.5	( 16.1 )	0.21	
Second-Hand Smoke	87.1	13.3		84.9	13.8	91.2	12.0	84.6	18.7	0.03	
Importance Scale	85.2	( 9.7 )		82.5	( 9.3 )	87.4	( 8.7 )	84.2	( 11.5 )	0.02	
<b>Psychosocial Assessment Importance Rating</b>											
Mood	84.1	( 13.6 )		81.0	( 11.9 )	86.2	( 14.7 )	84.3	( 14.8 )	83.7	
Money	79.5	( 19.0 )		76.0	( 16.6 )	78.5	( 19.2 )	73.6	( 26.9 )	77.3	
Food	82.8	( 15.5 )		78.4	( 12.9 )	83.5	( 16.7 )	83.6	( 18.0 )	81.9	
Housing	80.9	( 17.2 )		79.4	( 13.6 )	77.7	( 19.8 )	75.4	( 23.5 )	78.9	
Parenting	83.5	( 14.4 )		78.6	( 12.6 )	83.1	( 16.0 )	82.9	( 18.3 )	82.0	
Abuse	86.6	( 13.3 )		83.1	( 13.3 )	88.1	( 12.6 )	88.2	( 13.9 )	86.2	
Importance Scale	82.9	( 1.6 )		79.4	( 1.2 )	82.8	( 3.4 )	81.3	( 1.9 )	81.7	

\*P values for comparison of means between 0 and 100 are done with analysis of variance, and for measures between 0 to 100% with chi-square analysis.

\*\*The number of women in most ethnic groups is lower because not all women knew their prepregnancy weight and height, and their weight gain in pregnancy.

NA= Not Applicable because the scale for Provider Performance of Health Promotion Advice did not have reliability across all ethnic groups (Table 3.1).

**Appendix E, Table E2. Importance of health promotion and psychosocial assessment scales: Descriptive statistics and reliability of composite scales for women's rating of importance of that type of service by race/ethnicity.**

	African-American	Latinas		Whites	Total
		Foreign-Born	US-Born		
N	132	96	65	70	363
<b>Importance of Advice Scale</b>					
5 items, Higher=More Importance					
N	132	96	65	70	363
Mean	85.2	82.5	87.4	84.2	84.7
Std Dev	9.7	9.6	8.7	11.5	9.9
Observed Range	50 - 100	70 - 100	75 - 100	55 - 100	50 - 100
Possible Range	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100
Floor Effects	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling Effects	15.9%	12.5%	18.5%	20.0%	16.3%
Skewness	-0.2	0.7	0.1	-0.2	0.0
Internal Consistency	0.70	0.78	0.69	0.77	0.73
Range of item-total corr	0.33 - 0.61	0.45-0.65	0.34-0.51	0.46-0.67	0.41-0.56
Number of item-total correlations >=.30	5/5	5/5	5/5	5/5	5/5
<b>Importance of Needs Assessment Scale</b>					
6 items, Higher=More Importance					
Number of cases	132	96	65	70	363
Mean	82.9	79.4	82.8	81.3	81.7
Std Dev	11.7	10.6	12.4	14.6	12.2
Observed Range	54 - 100	50 - 100	50 - 100	33 - 100	33 - 100
Possible Range	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100
Floor Effects	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling Effects	18.9%	13.5%	16.9%	24.3%	18.2%
Skewness	0.0	0.7	-0.4	-0.4	-0.1
Internal Consistency	0.85	0.88	0.84	0.85	0.85
Range of item-total correlations	0.50 - 0.73	0.55-0.78	0.52-0.74	0.57-0.68	0.56-0.69
Number of item-total correlations >=.30	6/6	6/6	6/6	6/6	6/6

**Appendix E, Table E3. Unadjusted differences in mean ratings given for importance of advice (linear regression coefficients) by various demographic groups relative to their reference group with standard errors of the mean (SE).**

	Importance of Advice										Importance of Advice	
	Vitamins		Eating		Weight Gain		Physical Activity		Secondhand Smoke		Scale	
	Differ- ence	( S.E. )	Differ- ence	( S.E. )	Differ- ence	( S.E. )	Differ- ence	( S.E. )	Differ- ence	( S.E. )	Differ- ence	( S.E. )
<b>Race-Ethnicity</b>												
African-American	7.15	( 1.67 ) <sup>^^^</sup>	2.13	( 1.77 )	0.05	( 2.23 )	1.70	( 1.86 )	2.22	( 1.93 )	2.65	( 1.32 )*
Latina- Foreign Born	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
Latina- US Born	8.57	( 2.01 ) <sup>^^^</sup>	4.22	( 2.12 )*	1.08	( 2.68 )	4.29	( 2.23 )*	6.26	( 2.32 ) <sup>***</sup>	4.88	( 1.58 ) <sup>**</sup>
White	6.89	( 1.96 ) <sup>^^</sup>	3.65	( 2.08 ) <sup>0.08</sup>	-5.04	( 2.62 )*	3.33	( 2.18 )	-0.25	( 2.27 )	1.71	( 1.54 )
<b>Age</b>												
Less than 20 years	-2.74	( 2.01 )	-2.72	( 2.09 )	-3.57	( 2.63 )	-1.56	( 2.19 )	-3.26	( 2.26 )	-4.86	( 1.62 ) <sup>**</sup>
20 to 29	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
30 years or More	-3.52	( 1.54 )	-0.91	( 1.59 )	1.22	( 2.00 )	-2.25	( 1.67 )	-5.34	( 1.73 ) <sup>**</sup>	-1.37	( 1.18 )
<b>Parity</b>												
No previous births	-1.44	1.47	-2.68	( 1.51 ) <sup>0.08</sup>	-2.85	( 1.91 )	-3.82	( 1.57 ) <sup>**</sup>	-2.34	( 1.66 )	-2.63	( 1.12 ) <sup>**</sup>
One or More	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
<b>Marital Status</b>												
Married	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
Living together	4.09	( 1.81 ) <sup>**</sup>	1.71	( 1.88 )	0.94	( 2.11 )	-0.28	( 1.97 )	2.92	( 2.05 )	1.87	( 1.40 )
Single	3.36	( 1.62 )*	0.20	( 1.67 )	-1.10	( 2.37 )	1.42	( 1.76 )	4.27	( 1.83 )*	1.63	( 1.25 )
<b>Schooling</b>												
Less than 12 years	-1.39	( 1.56 )	-2.64#	( 1.60 ) <sup>0.10</sup>	0.34	( 2.03 )	-1.50	( 1.68 )	-1.55	( 1.76 )	-1.35	( 1.20 )
12 years	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
More than 12 years	1.78	( 1.75 )	-0.93	( 1.80 )	-0.25	( 2.28 )	2.08###	( 1.88 )	-2.03	( 1.98 )	0.13	( 1.35 )
<b>Income *</b>												
Less than \$10,000	1.35	( 1.52 )	1.22	( 1.56 )	3.29	( 1.97 ) <sup>0.096</sup>	3.22	( 1.64 )	1.24	( 1.71 )	1.62	( 1.17 )
\$10,000 to \$20,000	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
\$20,000 or more	3.62	( 1.84 )*	2.63	( 1.90 )	2.66	( 2.40 )*	3.22	( 1.99 ) <sup>0.10</sup>	-2.01	( 2.09 )	2.02	( 1.42 )
<b>Prenatal Care Visits</b>												
2 or 3	-2.76	( 1.76 )	-1.83	( 1.02 )	-0.30	( 2.28 )	0.97	( 1.90 )	3.51	( 1.98 ) <sup>0.07</sup>	-0.08	( 1.35 )
4 or 5	-1.28	( 1.55 )	1.49	( 1.60 )	3.64	( 2.01 ) <sup>0.07</sup>	1.97	( 1.68 )	1.87	( 1.75 )	1.54	( 1.20 )
6 or more	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001



Appendix E, Table E4. Adjusted differences in mean ratings given for importance of advice (linear regression coefficients) by various demographic groups relative to

	Importance of Advice										Importance of Advice Scale	
	Vitamins		Eating		Weight Gain		Physical Activity		Secondhand Smoke		Differ- ence	( CI )
	Differ- ence	( CI )	Differ- ence	( CI )	Differ- ence	( CI )	Differ- ence	( CI )	Differ- ence	( CI )		
<b>Race-Ethnicity</b>												
African-American	6.6	( 3.1,10.1 ) <sup>^^</sup>	1.9	( -1.8,5.6 )	1.3	( -3.3,5.3 )	-0.5	( -4.6,3.6 )	0.6	( -3.7,4.8 )	1.9	( -0.8,4.7 )
Latina- Foreign Born	Reference		Reference		Reference		Reference		Reference		Reference	
Latina- US Born	8.5	( 4.4,12.6 ) <sup>^^^</sup>	4.2	( -0.1,8.5 ) <sup>0.06</sup>	2.1	( -3.3,7.4 )	2.3	( -2.3,6.9 )	5.0	( 0.2,9.8 ) <sup>*</sup>	4.3	( 1.1,7.5 ) <sup>**</sup>
White	6.3	( 2.2,10.3 ) <sup>^^</sup>	3.2	( -1.1,7.5 )	-4.7	( -9.8,0.5 ) <sup>0.08</sup>	1.1	( -3.4,5.6 )	-1.7	( -6.3,3.0 )	0.8	( -2.4,3.9 )
<b>Age</b>												
Less than 20 years	-3.7	( -7.6, 0.1 ) <sup>0.06</sup>	-4.4	( -8.6,-0.1 ) <sup>*</sup>	-6.0	( -11.3, -0.7 ) <sup>*</sup>	-2.8	( -7.2,1.6 )	-5.2	( -9.9, -0.5 ) <sup>*</sup>	-4.5	( -7.6,-1.3 ) <sup>***</sup>
20 to 29	Reference		Reference+		Reference+		Reference+		Reference		Reference	
30 years or More	-3.2	( -6.1,-0.3 ) <sup>*</sup>	Reference+		Reference+		Reference+		-4.4	( -1.0, -7.9 ) <sup>***</sup>	-1.4	( -3.7,0.9 )
<b>Parity</b>												
No previous births			-3.2	( -6.3,0.0 ) <sup>*</sup>	-3.2	( -8.6, -0.6 ) <sup>**</sup>	-3.7	( -0.4,7.0 ) <sup>*</sup>	-2.0	( -5.5,1.5 )	-2.9	( -5.2,-0.5 ) <sup>**</sup>
One or More			Reference		Reference		Reference		Reference		Reference	
<b>Marital Status</b>												
Married	Reference+		Reference+		Reference+		Reference+		Reference			
Living together	2.9	( -0.05,5.8 ) <sup>*</sup>	1.9	( -1.2,5.8 ) <sup>*</sup>	Reference+		Reference+		2.3	( -1.7,6.3 )		
Single	Reference+		Reference+		-2.2	( -5.9,1.4 )	1.4	( -1.7,4.4 )	3.2	( -0.6,7.0 )		
<b>Schooling++</b>												
Per Year of Schooling			0.3 (-0.2, 0.8)				0.8 (0.2, 1.3) <sup>***</sup>		0.8 (0.3, 1.3) <sup>***</sup>		0.4 (0.3, 0.8) <sup>*</sup>	
<b>Prenatal Care Visits</b>												
2 or 3	-3.4	( -6.7,-0.05 ) <sup>*</sup>	-2.5	( -1.1,7.5 )	Reference+		Reference+		2.6	( -1.0,6.2 )	Reference+	
4 or 5	-1.6	( -4.5,1.4 )	Reference+		3.5	( -0.3, 7.1 ) <sup>0.06</sup>	1.9	( -1.2,4.9 )	Reference+		1.5	( -0.7,3.6 )
6 or more	Reference		Reference+		Reference+		Reference+		Reference+		Reference+	
<b>Model Fit</b>												
Variance explained	8.7%		2.5%		3.6%		3.5%		4.7%		5.7%	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

+Model that explained the most variance (adjusted R<sup>2</sup>) combined these groups as a single reference group.

++Model that explained most variance used a continuous variable for this characteristic.

+++Without race and ethnic groups, and only age and education in the model, 1.9% of variance was explained.

Appendix E, Table E5. Unadjusted differences in mean ratings given for importance of assessment (linear regression coefficients) by various demographic groups

	Importance of Needs Assessment										Importance of			
	Mood		Money		Food		Housing		Parenting		Abuse		Psychosocial Service	
	Difference	S.E. )	Difference	S.E. )	Difference	S.E. )	Difference	S.E. )	Difference	S.E. )	Difference	S.E. )	Coefficient(+)	S.E. )
<b>Race-Ethnicity</b>														
African-American	3.10	( 1.83 )	3.50	( 2.71 )	4.38	( 2.09 )*	1.44	( 2.44 )	4.88	( 2.03 )**	3.48	( 1.78 )*	3.46	( 1.63 )*
Latina- Foreign Born	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
Latina- US Born	5.16	( 2.19 )	2.42	( 3.25 )	5.08	( 2.50 )*	-1.73	( 2.93 )	4.43	( 2.43 ) <sup>07</sup>	5.00	( 2.13 )**	3.39	( 1.96 ) <sup>08</sup>
White	3.30	( 2.14 )	-2.47	( 3.18 )	5.19	( 2.45 )*	-4.07	( 2.87 )	4.21	( 2.37 ) <sup>08</sup>	5.14	( 2.09 )**	1.88	( 1.92 )
<b>Age</b>														
Less than 20 years	0.01	( 2.16 )	-1.15	( 3.20 )	0.32	( 2.47 )	3.17	( 2.88 )	2.04	( 2.39 )	0.38	( 2.11 )	0.79	( 1.93 )
20 to 29	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
30 years or More	0.64	( 1.64 )	0.97	( 2.44 )	-1.17	( 1.89 )	-1.42	( 2.19 )	0.99	( 1.82 )	0.17	( 1.61 )	0.03	( 1.47 )
<b>Parity</b>														
No previous births	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
One or More	-3.53	( 1.55 )**	-5.22	( 2.30 )**	-4.47	( 1.78 )**	-4.57	( 2.08 )*	-2.96	( 1.73 )	-2.48	( 1.53 )	-3.87	( 1.38 )***
<b>Marital Status</b>														
Married	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
Living together	4.81	( 1.92 )***	4.34	( 2.87 )	3.49	( 2.21 )	1.64	( 2.59 )	3.50	( 2.14 )	2.92	( 1.89 )	3.45	( 1.72 )*
Single	4.42	( 1.71 )	2.45	( 2.56 )	3.96	( 1.97 )*	1.60	( 2.31 )	3.72	( 1.91 )*	3.05	( 1.69 ) <sup>07</sup>	3.20	( 1.54 )*
<b>Schooling+</b>														
Less than 12 years	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
12 years		( )		( )		( )		( )		( )		( )		( )
More than 12 years		( )		( )		( )		( )		( )		( )		( )
Per year of school	0.83	( 0.26 ) <sup>^</sup>	-0.01	( 0.39 )	0.83	( 0.30 )***	0.11	( 0.35 )	1.12	( 0.28 ) <sup>^^</sup>	0.71	( 0.25 ) <sup>^^</sup>	0.60	( 0.23 )***
<b>Income++</b>														
Less than \$10,000	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
\$10,000 to \$20,000	-0.60	( 1.67 )	-2.73	( 2.48 )	1.05	( 1.92 )	-2.78	( 2.23 )	-1.21	( 1.85 )	0.00	( 1.64 )	-1.04	( 1.50 )
\$20,000 or more	2.29	( 1.86 )	-1.77	( 2.78 )	-0.73	( 2.16 )	0.00	( 2.51 )	2.47	( 2.08 )	1.82	( 1.82 )	0.68	( 1.68 )
<b>Health Status</b>														
Excellent, Very Good	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )
Good, Fair, Poor	-0.225	( 1.45 )	-1.15	( 2.15 )	-0.106	( 1.67 )	0.02	( 1.94 )	-1.56	( 1.61 )	-1.86	( 1.42 )	-0.83	( 1.30 )
<b>Prenatal Care Visits</b>														
2 or 3	0.86	( 1.87 )	2.42	( 2.77 )	0.86	( 2.14 )	1.60	( 2.50 )	-1.78	( 2.07 )	2.39	( 1.83 )	1.06	( 1.67 )
4 or 5	-0.44	( 1.65 )	3.13	( 2.45 )	1.87	( 1.90 )	2.13	( 2.21 )	1.78	( 1.83 )	1.37	( 1.62 )	1.64	( 1.48 )
6 or more	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )	0.00	( Ref )

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

+Only the continuous variable was significant.

\*\*The number of women in all ethnic groups is slightly lower because not all women knew or revealed household incomes (see Table 2.1).

Appendix E, Table E6. Adjusted differences in mean ratings given for importance of assessment (linear regression coefficients) by various demographic groups

	Importance of Needs Assessment											
	Mood		Money		Food		Housing		Parenting		Abuse	
	Differ- ence	( C.I. )	Differ- ence	( C.I. )	Differ- ence	( C.I. )	Differ- ence	( C.I. )	Differ- ence	( C.I. )	Differ- ence	( C.I. )
<b>Race-Ethnicity</b>												
African-American	0.6	( -3.4,4.6 )	3.9	( -1.4,9.2 )	2.3	( -3.3,5.3 )	1.4	( -3.4,6.2 )	2.0	( -2.2,6.5 )	1.7	( -2.2,5.6 )
Latina- Foreign Born	Reference		Reference		Reference		Reference		Reference		Reference	
Latina- US Born	2.8	( -1.6,7.3 )	2.1	( -4.3,8.5 )	2.9	( -3.3,7.4 )	-2.4	( -8.1,3.4 )	1.9	( -3.1,6.8 )	3.4	( -1.0,7.8 )
White	1.0	( -3.4,5.4 )	-2.8	( -9.8,-0.7 )	3.1	( -9.8,0.5 )	-4.5	( -10.1,1.1 )	1.4	( -3.5,6.3 )	3.5	( -0.8,7.8 )
<b>Parity</b>												
No previous births	-2.5	( -5.5,0.6 )	-5.3	( -6.3,0.0 )**	-3.6	( -8.6, -0.6 )*	-5.0	( -9.1,-0.9 )**	-2.0	( -5.4,1.4 )	-1.6	( -4.7,1.4 )
One or More	Reference		Reference		Reference		Reference		Reference		Reference	
<b>Marital Status+</b>												
Married	Reference		Reference+		Reference				Reference		Reference	
Living together	4.4	( 0.6,8.1 )	3.3	( -1.2,5.8 )	2.9	( 0.6,8.1 )			3.0	( -1.2,7.2 )	2.6	( -1.2,6.3 )
Single	3.6	( 0.2,7.1 )	Reference+		2.7	( 0.2,7.1 )			2.5	( -1.5,6.4 )	2.2	( -1.3,5.7 )
<b>Schooling++</b>												
Per Year of Schooling	0.7 (0.2, 1.2)				0.6 (0.0, 1.2) .06				1.0 (-0.4, 1.6)^		0.5 (0.0,1.1) .06	
<b>Model Fit</b>												
Variance explained	4.2%		1.9%		2.9%		1.7%		3.8%		2.4%	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

+Model that explained the most variance (adjusted R<sup>2</sup>) combined these groups as a single reference group.

++Model that explained most variance used a continuous variable for this characteristic.

+++Without race and ethnic groups, and only age and education in the model, 1.9% of variance was explained.

## **Appendix F**

### **Healthy Behaviors and Support Service Performance**

## Appendix F

### Healthy Behaviors and Support Service Performance

**Purpose:** To determine whether reliable and valid healthy behavior scales could be developed and tested for their association with performance of support services.

**Summary of Findings.** Most healthy behavior scales were not reliable and could not be tested for their association with performance of support services.

#### Healthy Behavior Scales

Healthy Behaviors were defined using the recommended advice in the CPSP Providers Handbook described above {CDHS 1997}. The specific behavioral guidelines in the 5 areas of health promotion were taken from the following: 1) Taking Vitamins; 2) Eating Proper Foods; 3) Weight Gain; 4) Safe Exercise in Pregnancy; and 5) Secondhand Tobacco Smoke.

**Vitamin Taking.** For taking vitamins and minerals the recommended behavior is to take one pregnancy multivitamin and mineral pill every day (CPSP Providers Handbook pages Nutr 59-62). Women were asked, "In the last month, how many days a week did you take vitamins or minerals?" The response choices were, "No days, 1 to 2 days per week, 3 to 4 days per week, 5 to 6 days per week or Every day." See Appendix B (Table B.1) for items, responses and scale composition. The scale was a single item, 5 level scale, with highest value the highest compliance with recommended advice (Table 3.5). The mean value was 86.8 with a standard deviation of 27.9. The skewness statistic had a value of -2.1. Some 5% of scores had zero values, and 75% of scores had values of 100. Therefore a transformation was tried (squared value) but the skew did not improve, because of the large ceiling effect. *This item was not suitable for a dependent variable and hypothesis testing, or for inclusion in the overall composite Healthy Behavior scale (see below).*

**Eating Proper Food.** For eating proper foods the recommended behavior is to eat frequent small meals, not to go more than an hour without eating some food, and to eat at least one food from every food group, and at least 2 foods each from the fruits and vegetables group (CPSP Providers Handbook pages Nutr 17-26). For the scale, the responses from the following three questions were combined to make composite scores for healthy eating behavior: "Thinking back to yesterday, how many times did you eat a meal or snack; what was the longest time you went without eating a meal or snack; and did you eat any dairy products [or if woman had indicated she was galactose intolerant, then dairy substitute products], protein products, grain products, fruits at least 2 times and vegetables at least 2 times? The response values to the first two questions (food frequency) had 5 levels each, the response to the last 5 questions (food content) were yes/no responses. The sum of the response values for the first two questions were added to the double weighted value for the sum of the "Yes" responses to each of the nutritious food types eaten. See Appendix B (Table B.2) for items, responses and scale composition. *The variability and reliability of the scale are shown in Table 3.5. This is the only behavior scale that meets variability and reliability criteria used for all other scales.*

**Weight Gain.** The recommended weight gain behavior during pregnancy was determined from a woman's prepregnancy weight-for-height category, and the weight gain guidelines in the CPSP Provider Handbook Table 1 "How to Assess Weight Gain;" and Table 2 Recommended range and rate of weight gain (page Nutr-4). Women were asked: How much did you weigh before you got pregnant? How tall are you without shoes? How much weight did you gain in the last month? Each woman was given a score given her biweekly average weight gain for the month and the gestational

age of her pregnancy (for example, within 1 pound of the biweekly guideline amount was given the highest score a 5, 2 pounds a 4, 3 pounds a 3, 4 pounds a 1 and more than 4 pounds a zero). See Appendix B (Table B.3) for items, responses and scale composition. The first problem with this scale was that 29 women did not know either their height or their prepregnancy weight (Table 3.5). While imputation of reasonable values might have been attempted, there were problems with high floor, and even higher ceiling effects. This item was not suitable for a dependent variable and hypothesis testing, or for inclusion in the overall composite Healthy Behavior scale (see below).

**Exercise Activity.** The recommended behavior is to exercise during pregnancy as much, but no more than before pregnancy (CPSP Providers Handbook pages HE-43-50). On the other hand, for women whose doctors had not told them not to exercise in pregnancy, however, the recommended behavior was not to exercise. Therefore women were asked three questions in the following order, “Think back to the month before you found out that you were pregnant: In that month, how many times a week did you exercise or take part in physical activities such as walking for half an hour or more?” Then they were asked, “In the past month, how many times a week did you exercise for half an hour or more a day?” Finally they were asked, “Has your prenatal care doctor told you that you should not exercise during this pregnancy?” If the answer to the last question was not equal to 'Yes,' then the highest score (4) was given if the responses to the two prior questions was the same; a 3 was given if the second question was 1 more time per week than the first; a 2 if 2 more times; a 1 if 3 or more times; and a 0 if they exercised fewer times a week in pregnancy than before pregnancy. If the answer to the question on whether they had been advised not to exercise in pregnancy was a 'Yes,' then they were given the highest score (4) if they exercised not at all, and increasing scores according to the number of times a week they exercised for half an hour or more a day. See Appendix B (Table B.4) for items, responses and scale composition. With the Exercise Activity behavior scale there were problems with high floor and ceiling effects (Table 3.5). This item was not suitable for a dependent variable and hypothesis testing, or for inclusion in the overall composite Healthy Behavior scale (see below).

**Secondhand Smoke.** The recommended behavior related to secondhand smoke is to not be around people who smoke during pregnancy (CPSP Providers Handbook pages HE-54 – 56). It was also in the guidelines that women not smoke themselves during pregnancy. Women were asked, “Do you now smoke cigarettes?” And, “In the last month, how many days a week were you around people who smoked?” If the woman smoked cigarettes she received the lowest possible score, otherwise she was given a score for how many days a week she was around people who smoked. See Appendix B (Table B.5) for items, responses and scale composition. With the Secondhand Smoke behavior scale there were problems with the large difference in smoking behaviors between Foreign-born Latinas and all other groups (Table 3.5). Fewer Foreign-born Latinas smoked themselves, and fewer Foreign-born Latinas were around people who smoked. It is demonstrated by the very high ceiling effect for Latinas (70.8% with 100 point score), that is only half as high for African-Americans (35.6%) and Whites (34.3%). This item was not suitable for a dependent variable and hypothesis testing across all ethnic groups, or for inclusion in the overall composite Healthy Behavior scale (see below).

**Final Overall Composite Healthy Behavior Scale.** It is not surprising that the final overall composite Healthy Behavior scale including four behavior subscales (all but weight gain) did not meet the variability and reliability criteria for all ethnic groups. None of the reliability criteria were met, and only one item of the four possible subscales correlated with the total score and that was for one ethnic group (African-Americans) only. Though a variety of attempts were made to improve on the subscales and composite scale, no significant improvements in the scales were found.

## **Association of Support Services with Recommended Healthy Behaviors**

### **Healthy Behaviors in Different Ethnic Groups**

When women were asked about their behaviors in pregnancy there were few essential differences among the ethnic groups in the extent to which the women's behaviors agreed with the recommended health behaviors for the Comprehensive Perinatal Services Program (Table M.14), even after adjustment for the independent contribution of other variables (Table M.15). Prior to adjustment there were significant difference in physical activity among White women and in avoiding secondhand smoke among Latinas (Table M.14). After adjustment, however, only the difference in the extent to which foreign-born pregnant Latinas avoided being around people who smoked was significantly different. Foreign-born Latinas avoided secondhand smoke far more often than did African American women (adjusted mean compared to foreign-born Latinas -25.5 points out of 100,  $\pm 4.6$  SEM;  $P < 0.001$ ) or White women (adjusted mean -23.7,  $\pm 5.1$  SEM;  $P < 0.0001$ ). US-born Latinas had mean scores in between foreign-born Latinas and the other two groups (adjusted mean  $-5.3 \pm 5.4$  SEM) but not significantly lower ( $P > 0.05$ ). Demographic variables contributed little to explaining healthy behaviors Table M.14). Age emerged as a contributing variable most often.

For two behaviors, taking vitamins and eating proper foods, there was a positive associated effect of how women rated the importance of behavioral advice in helping to explain the healthy behaviors (Table M.15). The higher women rated the importance of getting advice on taking vitamins or eating proper foods in pregnancy, the higher their average behavioral score. The 24 point effect was larger for vitamins (0.24 per point in the 100 point scale  $\pm 0.11$  SEM) than the 14 point effect on eating proper foods (0.14 per point  $\pm 0.07$  SEM) but just as significant ( $P \leq 0.5$ ).

### **Association of Health Promotion Services with Healthy Behaviors**

Having providers give advice on healthy behaviors in pregnancy was associated with higher levels of behavior only for appropriate weight gain, and the effect did not depend on ethnic group (Table M.15). Women who reported they had been given advice about how much weight to gain, had adjusted mean scores for appropriate weight gain that were 13.9 out of 100 points higher (13.9; CI 2.8, 25.0;  $P \leq 0.0001$ ). If race-ethnicity variables were dropped from the adjustment model the effect changed very little (14.2; CI 3.2, 25.2,  $P \leq 0.0001$ ) and the model actually explained slightly more of the variance in weight gain behavior (2.4% instead of 1.8%).

Women who reported they had received advice about eating proper foods at proper frequencies were slightly more likely to have higher levels of appropriate eating (Table M.14). But the differences were only different ( $P = 0.09$ ) when adjusted for race-ethnicity as well as all the other variables (Table M.15). Adjusted mean scores for appropriate eating behavior were 7.5 points higher out of 100 (CI -1.2, 16.1;  $P = 0.09$ ). If race-ethnicity variables were dropped from the adjustment the effect changed very little (6.6; CI -1.9, 15.1,  $P > 0.10$ ) and the model actually explained slightly more of the variance in weight gain behavior (9.4% instead of 8.0%), even though the provider performance effect was not as large or as significant.

### **Association of Psychosocial Services with Healthy Behaviors**

Having psychosocial problems had an associated negative effect on two behaviors: eating proper foods and avoiding secondhand smoke (Table M.15). The 39 point effect was larger on avoiding secondhand smoke (-0.39 per point;  $\pm 0.07$  SEM) than the 17 point effect for eating

proper foods (-0.17 per point difference;  $\pm 0.04$  SEM) but just as significant ( $P \leq 0.0001$ ). We tested these models in which psychosocial problems had significant negative effects on healthy behaviors to see if performance of psychosocial needs assessments was associated with significant independent positive effects on healthy behaviors. In the case of eating proper foods a significant effect was found. The more women had been asked about psychosocial problems, the better their reported eating behavior.



**Appendix F, Table F1. Healthy Behavior scale development: Descriptive statistics and reliability of composite scales by race/ethnicity.**

	African-American	Latinas		Whites	Total
		Foreign-Born	US-Born		
N	132	96	65	70	363
<b>Taking Vitamins</b>					
1 item, Higher=Taking vitamins more days per week					
Mean	88.4	85.2	88.1	85.0	86.8
Std Dev	25.4	27.8	26.2	28.4	26.6
Observed Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor Effects					5%
Ceiling Effects					75%
Skewness	-2.5	-1.9	-2.4	-1.8	-2.1
Internal Consistency	NA	NA	NA	NA	NA
Range of item-total correlations	NA	NA	NA	NA	NA
Number of item-total correlations >=.30	NA	NA	NA	NA	NA
<b>Eating Properly</b>					
3 items (4 pts each weighted evenly, prpcmpl), Higher=Eating more often and more kinds of food groups					
Mean	69.8	72.5	68.2	72.1	70.7
Std Dev	18.7	19.0	19.1	16.9	18.5
Observed Range	0 to 100	8.3 to 100	16.6 to 100	8.3 to 100	0 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor Effects	0.8%	0.0%	0.0%	0.0%	0.3%
Ceiling Effects	1.5%	7.3%	0.0%	1.4%	2.8%
Skewness	-1.05	-1.08	-0.75	-1.24	-1.02
Internal Consistency	0.65	0.68	0.63	0.64	0.64
Range of item-total correlations	0.43 - 0.48	0.43 - 0.54	0.28 - 0.60	0.36 - 0.58	0.40 - 0.50
Number of item-total correlations >=.30	3/3	3/3	2/3	3/3	3/3
<b>Weight Gain</b>					
1 item construct, Higher=Fewer pounds deviant from recommended biweekly weight change					
N (women with prepregnancy weight and height information)					
	172	74	62	66	334
Mean	65.0	68.9	63.7	61.0	64.8
Std Dev	39.4	35.1	40.9	39.5	38.7
	61%	51%	64%	65%	60%
Observed Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor Effects	18.9%	13.5%	19.4%	21.2%	18.3%
Ceiling Effects	46.2%	40.5%	46.8%	37.9%	43.4%
Skewness	-0.6	-0.9	-0.6	-0.5	-0.6
Internal Consistency	NA	NA	NA	NA	NA
Range of item-total correlations	NA	NA	NA	NA	NA

Number of item-total correlations $\geq .30$	NA	NA	NA	NA	NA
<b>Exercise, Physical Activity</b>					
1 item construct, Higher=smaller change in times per week from prior to pregnancy					
Mean	57.0	53.1	46.2	63.9	55.4
Std Dev	43.7	42.5	45.8	41.4	43.5
	77%	80%	99%	65%	79%
Observed Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor Effects	33.3%	31.3%	35.4%	22.9%	32.8%
Ceiling Effects	40.9%	34.4%	44.6%	47.1%	39.4%
Skewness	-0.4	-0.2	0.4	-0.6	-0.3
Internal Consistency	NA	NA	NA	NA	NA
Range of item-total correlations	NA	NA	NA	NA	NA
Number of item-total correlations $\geq .30$	NA	NA	NA	NA	NA
<b>Secondhand Smoke</b>					
1 item construct, Higher=Fewer days per week around someone who smokes					
Mean	59.7	88.0	79.6	63.2	71.4
Std Dev	39.9	22.6	30.6	38.0	36.0
	67%	26%	38%	60%	50%
Observed Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor Effects	24.2%	3.1%	9.2%	21.4%	15.4%
Ceiling Effects	35.6%	70.8%	55.4%	34.3%	48.2%
Skewness	-0.5	-2.3	-1.7	-0.7	-1.2
Internal Consistency	NA	NA	NA	NA	NA
Range of item-total correlations	NA	NA	NA	NA	NA
Number of item-total correlations $\geq .30$	NA	NA	NA	NA	NA
<b>Healthy Behaviors Composite Scale</b>					
4 items, Higher=healthier behavior (Weight Gain excluded)					
Mean	68.71	74.70	70.51	71.07	71.07
Std Dev	17.01	15.54	15.11	18.72	16.76
Observed Range	18.8 to 97.9	37.5 to 100	33.3 to 97.9	18.8 to 97.9	18.8 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor effects (% lowest)	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling effects (% highest)	0.0%	1.0%	0.0%	0.0%	0.3%
Skewness statistic	-0.32	-0.44	-0.47	-0.82	-0.51
Internal Consistency	0.17	0.14	-0.14	0.46	0.17
Range of item-total correlations	-.07 to 0.21	-.07 to 0.13	-.15 to 0.11	-.07 to 0.50	-.03 to 0.19
Number of item-total correlations $\geq .30$	0/4	0/4	0/4	1/4	0/4

Appendix F, Table F2. Unadjusted regression coefficients for healthy behaviors by sample characteristics and support service characteristics.

	Healthy Behaviors									
	Vitamins		Eating		Weight Gain N=334		Activity		Secondhand Smoke	
	Coefficient	( S.E. )	Coefficient	( S.E. )	Coefficient	( S.E. )	Coefficient	( S.E. )	Coefficient	( S.E. )
<b>Race-Ethnicity</b>										
African-American	4.66	( 3.89 )	-2.31	( 2.73 )	-3.96	( 5.63 )	8.70	( 6.30 )	-30.20	( 4.94 )^^
Latina- Foreign Born	reference		reference		reference		reference		reference	
Latina- US Born	4.12	( 4.62 )	-4.06	( 3.24 )	-5.21	( 6.68 )	-0.73	( 7.47 )	-9.62	( 5.86 )
White	2.96	( 4.54 )	0.53	( 3.18 )	-7.93	( 6.57 )	14.95	( 7.34 )*	-28.10	( 5.76 )^^
<b>Age</b>										
Less than 20 years	-4.54	( 4.21 )	-3.35	( 2.90 )	-23.3###	( 6.08 )^	9.40	( 6.81 )	-10.9	( 5.65 )*
20 to 29	reference		reference		reference		reference		reference	
30 years or More	-1.98	( 3.20 )	-5.46##	( 2.20 )***	-1.70	( 4.78 )	12.1	( 5.19 )**	-6.85	( 4.31 )
<b>Parity</b>										
No previous births	-1.59	( 3.05 )	-4.59+	( 2.10 )*	6.70++	( 4.60 )++	-0.44	( 4.98 )	-0.57	( 4.12 )
One or More	reference		reference		reference		reference		reference	
<b>Marital Status</b>										
Married	reference		reference		reference		reference		reference	
Living together	1.94	( 3.78 )	2.29	( 2.62 )	-8.75	( 5.87 )	-7.78	( 6.15 )	-5.92	( 5.02 )
Single	2.83	( 3.37 )	-1.40	( 2.34 )	-3.28	( 5.21 )	-4.10	( 5.50 )	-15.3	( 4.49 )^
<b>Schooling</b>										
Less than 12 years	-0.09	( 3.23 )	-1.25	( 2.25 )	5.59	( 4.94 )	4.54	( 5.28 )	2.22	( 4.37 )
12 years	reference		reference		reference		reference		reference	
More than 12 years	-3.24	( 3.63 )	-0.77	( 2.52 )	-4.43+++	( 5.31 )	2.89	( 5.92 )	0.71	( 4.91 )
<b>Income</b>										
Less than \$10,000	3.97	( 3.14 )	-0.69	( 2.19 )	2.71	4.81	-3.24	( 5.14 )	-9.50	( 4.23 )**
\$10,000 to \$20,000	0.00	( ref )	reference		reference		reference		reference	
\$20,000 or more	-2.77	( 3.82 )	1.88	( 2.66 )	1.15	5.78	1.61@	( 6.26 )	-1.73	( 5.15 )
<b>Health Status</b>										
Excellent, Very Good	reference		reference		reference		reference		reference	
Good, Fair, Poor	-7.44#	( 2.81 )***	-7.82	( 1.92 )^	6.77	( 4.28 )	-0.37	( 4.62 )	-2.76	( 3.83 )
<b>Prenatal Care Visits</b>										
2 or 3	-1.83	( )	0.86	( 2.53 )	-2.80	( 5.53 )	-7.55	( 5.94 )	-4.19	( 4.92 )
4 or 5	-4.06	( 3.22 )	-1.90	( 2.24 )	-2.90	( 4.88 )	-3.66	( 5.26 )	3.28	( 4.35 )
6 or more	reference		reference		reference		reference		reference	
<b>Health Promotion</b>										
<b>Importance Scale</b>										
per point on 100 pt scale	0.24	( 0.11 )*	0.14	( 0.07 )*	-0.06	( 0.12 )	-0.14	( 0.16 )	0.18	( 0.13 )
<b>Advice for the area</b>										
per 100 points	4.13	( 5.01 )	9.56	( 4.45 )*	11.46	( 5.49 )*	5.40	( 1.69 )***	0.62	( 5.06 )
<b>Psychosocial</b>										
<b>Problem Scale</b>										
per point on 100 pt scale	-0.09	( 0.05 )	-0.17	( 0.04 )^^^	0.03	( 0.08 )	0.07	( 0.09 )	-0.39	( 0.07 )^^^
<b>Importance Scale</b>										
per point on 100 pt scale										
<b>Assessment Scale</b>										
per point on 100 pt scale	0.04	( 0.04 )	0.13	( 0.03 )	0.09	( 0.06 )	0.07	( 0.07 )	0.02	( 0.06 )

**Appendix F, Table F3. Adjusted regression coefficients for variables in best-fit models for healthy behaviors.**

	Healthy Behaviors									
	Vitamins		Eating		Weight Gain		Physical Activity		Secondhand Smoke	
	Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )
<b>Race-Ethnicity</b>										
African-American	0.8	( 3.67 )	-3.2	( 2.4 )	2.3	( 5.7 )	4.5	( 5.8 )	-25.5	( 4.6 ) <sup>^^^</sup>
Latina- Foreign Born	reference		reference		reference		reference		reference	
Latina- US Born	0.1	( 4.38 )	-5.2	( 2.9 )	3.1	( 6.7 )	-6.0	( 7.0 )	-5.3	( 5.4 )
White	-2.2	( 4.23 )	-0.3	( 2.8 )	-0.7	( 6.7 )	11.3	( 6.8 )	-23.7	( 5.1 ) <sup>^^^</sup>
<b>Age</b>										
Per year of age++			-0.4	( 0.2 ) <sup>*</sup>						
Less than 20 years					-24.7	( 5.9 ) <sup>^^^</sup>	reference+		-5.9	( 5.0 )
20 to 29						reference+	reference+			reference+
30 years or More						reference+	10.3 ( 5.03 ) <sup>*</sup>			reference+
<b>Parity</b>										
Per previous child++										
No previous births			reference							
One or More			-0.8	( 2.18 )						
<b>Marital Status</b>										
Married										reference+
Living together										reference+
Single									-4.7	( 3.7 )
<b>Schooling</b>										
Per year of schooling++					-2.1	( 1.0 ) <sup>*</sup>				
<b>Health Status</b>										
Excellent,Very Good	reference		reference							
Good, Fair, Poor	-6.8	( 2.9 ) <sup>**</sup>	-4.5	( -2.0 ) <sup>*</sup>						
<b>Health Promotion</b>										
<b>Importance Scale</b>										
per pt in the 100 pt scale	0.23	( 0.11 ) <sup>*</sup>	0.14	( 0.07 ) <sup>*</sup>						
<b>Performance Advice</b>										
per 100 points	3.6	( 5.1 )	5.2	( 4.4 )	11.9	( 5.4 ) <sup>*</sup>	-3.7 ( 5.4 )		-5.6	( 4.7 )
<b>Psychosocial Service</b>										
<b>Problem Scale</b>										
per pt in the 100 pt scale			-0.12	( 0.03 ) <sup>***</sup>					-0.38	( 0.07 ) <sup>^^^</sup>
<b>Assessment Scale</b>										
per pt in the 100 pt scale			0.10	( 0.03 ) <sup>^^</sup>						
<b>Model Fits</b>										
Variances explained	1.8%		13.5%		5.7%		1.6%		18.5%	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

+Model that explained the most variance (adjusted R<sup>2</sup>) combined these groups as a single reference group.

++Model that explained most variance used a continuous variable for this characteristic.



**Table 3.1 Health promotion scale development: Descriptive statistics and reliability of composite scales for women's report that they received advice by race/ethnicity.**

	African-American	Latinas		Whites	Total
		Foreign-Born	US-Born		
N	132	96	65	70	363
<b>Performance of Advice Scale</b>					
5 items, Higher=Advice Given in More Areas					
Number of cases with values	132	96	65	70	363
Mean	85.3	88.8	85.5	81.4	85.5
Std Dev	23.2	18.8	19.5	26.4	22.2
Observed Range	0 to 100	20 to 100	20 to 100	0 to 100	0 to 100
Possible Range	0 to 100	0 to 100	0 to 100	0 to 100	0 to 100
Floor Effects	2.3%	0.0%	0.0%	2.9%	1.4%
Ceiling Effects	59.9%	65.6%	55.4%	55.7%	59.8%
Skewness	-1.91	-1.76	-1.32	-1.49	-1.62
Internal Consistency	0.72	0.56	0.46	0.74	0.66
Range of item-total correlations	0.44-0.51	0.21-0.39	0.14-0.30	0.39-0.62	0.35-0.45
Number of item-total correlations >=.30	5/5	3/5	1/5	5/5	5/5

**Table 3.2 Psychosocial service scale development: Descriptive statistics and reliability of composite scales by race/ethnicity.**

	African-American	Latinas		Whites	Total
		Foreign-Born	US-Born		
N	132	96	65	70	363
<b>Performance of Needs Assessment Scale</b>					
6 items, Higher=More Performance					
Number of cases	132	96	65	70	363
Mean	39.1	47.2	36.1	35.6	40.9
Std Dev	33.0	18.8	19.5	32.5	34.5
Observed Range	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100
Possible Range	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100
Floor Effects	21.2%	16.7%	29.2%	22.9%	21.8%
Ceiling Effects	9.9%	19.8%	4.6%	14.3%	12.4%
Skewness	0.46	0.22	0.49	0.51	0.42
Internal Consistency	0.81	0.84	0.80	0.84	0.82
Range of item-total correlations	0.46 - 0.59	0.41 - 0.69	0.40 - 0.63	0.39 - 0.78	0.42 - 0.66
Number of item-total correlations >=.30	6/6	6/6	6/6	6/6	6/6
<b>Psychosocial Problems Scale</b>					
6 items, Higher=More Problem Areas					
Number of cases	132	96	65	70	363
Mean	28.5	27.4	29.0	28.8	28.4
Std Dev	26.7	15.5	15.1	18.7	26.2
Observed Range	0 - 100	0 - 100	0 - 83	0 - 100	0 - 100
Possible Range	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100
Floor Effects	25.0%	29.2%	26.2%	28.6%	27.0%
Ceiling Effects	3.0%	1.0%	0.0%	2.9%	1.9%
Skewness	1.00	0.72	0.63	0.75	0.81
Internal Consistency	0.67	0.65	0.65	0.66	0.66
Range of item-total correlations	0.36 to 0.45	0.16 to 0.62	0.21 to 0.58	0.32 to 0.52	0.28 to 0.51
Number of item-total correlations >=.30	6/6	4/6	4/6	6/6	5/6

**Table 3.3 Original domains and final factors of the three dimensions of the Prenatal Interpersonal Processes of Care measure.**

Communication		Decision making		Interpersonal style	
Original	Final	Original	Final	Original	Final
General Clarity	<i>Eliminated because final scale did not meet internal consistency criteria in three ethnic groups.</i>	Responsiveness to patient preferences regarding decisions**	Decision-making scale composed of items designed for both of the original domains.	Friendliness and Courteousness	Friendliness and Courteousness
Elicitation of, and responsiveness to, patient problems, concerns, and expectations	Elicitation of, and responsiveness to, patient problems, concerns, and expectations	Consideration of patients ability and desire to comply with recommendations**		Respectfulness***	<i>Became part of the Emotional Support and reassurance domain.</i>
Explanations of: >Advice;* >Processes of care; >Self-care	Explanations of: Processes of care;			Discrimination	Discrimination
Empowerment*	Empowerment and explanations of self care			Emotional support, reassurance***	Emotional support, reassurance and respect

\*Originally the 'Explanation of Advice' items and 'Empowerment' items were expected to be independent. However in confirmatory factor analysis 'Explanation of Advice' items loaded only onto the Empowerment factor which makes sense conceptually.

\*\*\*Originally Responsiveness to Patient Preferences and Consideration of Ability to Comply were to have been independent domains. However in confirmatory factor analysis respect items loaded well onto Emotional Support.

\*\*\*Originally Respectfulness and Emotional Support and Reassurance were supposed to be independent domains. However in confirmatory factor analysis the majority of items loaded onto a single factor.



**Table 3.4 Factor loadings for Communication subscales and single summative index scale (entire sample, N=363).**

Item	Factor 1- Empowerment	Factor 2- Elicitation of patient's problems	Factor 3- General Clarity	Factor 4- Explanation of processes of care
<b>Stem: How often did providers . . .</b>				
Tell you how to pay attention to your symptoms?	<b>75</b>	.	.	.
Make you feel that your everyday activities such as diet and lifestyle would make difference in your pregnancy?	<b>72</b>	.	.	.
Tell you what you could do to take care of yourself and your pregnancy at home?	<b>67</b>	.	.	14
Make you feel that following their advice would make a difference in your health or the health of your baby?	<b>62</b>	23	.	.
Take your concerns seriously?	13	<b>72</b>	.	.
Ignore what you told them?		<b>68</b>	17	.
Listen carefully to what you had to say?	18	<b>66</b>		11
Give you enough time to say what you thought was important?	.	<b>65</b>	.	15
How often did you have trouble understanding the nurses, midwives, doctors or other providers because they spoke too fast?	.	.	<b>90</b>	.
How often did the nurses, midwives, doctors, or other providers at your prenatal care visits use medical words that you did not understand?	-10	10	<b>44</b>	.
Tell you what they were doing as they gave you a physical examination?	.	.	.	<b>79</b>
Explain why a test (such as an ultrasound, blood or urine test was being done)?	22	23	-13	<b>44</b>
<b>Factor loadings of subscale onto a higher order factor of Communication (bold items only used in scale):</b>	<b>76</b>	<b>77</b>	<b>NA</b>	<b>73</b>

**Table 3.5 Factor loadings for Decision-Making scale (entire sample, N=363).**

Item	Factor- Decision Making
<b>Stem: How often did providers . . .</b>	
Ask if you felt comfortable following advice that they gave you?	<b>89</b>
Ask you how you felt about the advice they gave you?	<b>82</b>
Ask if you would be able to follow their advice?	<b>76</b>
Try to include you in decisions about your pregnancy care?	<b>44</b>
<b>Factor loadings of subscale onto the higher order factor*:</b>	<b>NA*</b>

\*Since Decision-making is a single scale, there is no higher order factor.

**Table 3.6 Factor loadings for Interpersonal Style scales (entire sample, N=363).**

Item	Factor 1- Perceived discrimination	Factor 2- Respectfulness and Emotional Support	Factor 3- Friendliness and Courteousness
<b>Stem: How often . . .</b>			
Did you feel discriminated against because you are insured by MediCal?	<b>85</b>	.	.
Did you feel discriminated against because of your race or ethnicity?	<b>80</b>	.	.
Did you feel discriminated against because of how much money you have?	<b>75</b>	.	.
Did you feel discriminated against because of how well you speak English?	<b>60</b>	.	.
Did you feel discriminated against because of your education?	<b>55</b>	16	-32
Did providers or staff have a negative attitude toward you?	<b>41</b>	-11	-30
Did providers or staff make you feel inferior (like you were less important than they were)?	<b>40</b>	-12	-14
Were providers compassionate and care?	.	<b>76</b>	11
Did providers compliment you on how well you take care of yourself during your pregnancy?	.	<b>64</b>	.
Did providers help you feel less worried about your pregnancy?	.	<b>54</b>	-13
Were you asked if you would like to bring your husband, partner or someone important to you to your next prenatal visit?	.	<b>52</b>	.
Did providers seem to care about you as a person?	.	<b>46</b>	11
Did providers address you by the name that you prefer?	.	<b>38</b>	.
Did providers make you feel as if you weren't welcome?	.	.	<b>87</b>
Were providers rude to you?	.	.	<b>79</b>
Did providers treat you in a friendly and courteous manner?	-2	31	<b>43</b>
<b>Factor loadings of subscale onto a higher order factor of Interpersonal Style (bold items only used in scale):</b>	<b>78</b>	<b>55</b>	<b>73</b>

**Table 3.7 Prenatal Interpersonal Processes of Care (PIPC) subscale development from 37 items: Descriptive statistics and reliability by race/ethnicity.**

	African-American	Latinas		Whites	Total N=363
		Foreign-Born	US-Born		
<b>Communication</b>					
<b>General Clarity=2 items</b>					
Higher=more clarity					
Mean (S.D.)	84.6 (18.5)	85.0 (17.7)	83.3 (17.3)	90.7 (12.0)	85.6 (17.1)
Observed Range	0-100	37.5-100	25-100	50-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.0%	0.0%	0.0%	0.00%	0.30%
Ceiling effects (% highest)	41.7%	46.9%	35.4%	52.90%	44.10%
Skewness statistic	-1.5	-1.5	-1.4	-1.3	-1.3
Internal Consistency	0.51	0.82	0.45	0.42	0.57
Range of item-total	0.34	0.67	0.29	0.27	0.40
correlations					
<b>Elicitation of Patient's Problems=4 items</b>					
Higher=better elicitation					
Mean (S.D.)	92.1(16.5)	91.0 (16.2)	91.5 (14.8)	93.7 (12.3)	92.0 (15.3)
Observed Range	6.3-100	31.3-100	13-100	38-100	6.25-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling effects (% highest)	65.2%	62.5%	53.9%	67.1%	62.8%
Skewness statistic	-3.1	-2.1	-3.1	-2.6	-2.8
Internal Consistency	0.86	0.80	0.86	0.82	0.83
Range of item-total	0.58-0.76	0.48-0.79	0.63-0.78	0.58-0.78	0.57-0.73
correlations					
<b>Explanations of Processes of Care=2 items</b>					
Higher=better explanations					
Mean (S.D.)	92.2 (17.0)	88.7 (23.2)	82.4 (23.8)	91.3 (17.9)	90.2 (19.4)
Observed Range	13-100	0-100	25-100	0-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.8%	2.0%	3.1%	1.60%	0.80%
Ceiling effects (% highest)	75.6%	70.0%	57.0%	73.40%	70.00%
Skewness statistic	-2.7	-2.5	-1.7	-2.8	-2.5
Internal Consistency	0.67	0.82	0.42	0.70	0.66
Range of item-total	0.50	0.70	0.27	0.54	0.49
correlations					

	African-American	Latinas		Whites	Total N=363
		Foreign-Born	US-Born		
<b>Empowerment=4 items</b>					
Higher=more empowerment					
Mean (SD)	85.9 (20.7)	81.9 (25.4)	82.4 (23.8)	84.3 (22.1)	83.9 (22.8)
Observed Range	0-100	0-100	0-100	0-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	1.5%	1.0%	1.5%	1.60%	1.40%
Ceiling effects (% highest)	49.6%	47.0%	35.4%	46.90%	45.70%
Skewness statistic	-2.1	-1.4	-1.8	-1.8	-1.8
Internal Consistency	0.80	0.83	0.83	0.86	0.82
Range of item-total	0.57-0.65	0.71-0.81	0.51-0.78	0.69-0.73	0.59-0.70
correlations					
<b>Decision-making</b>					
<b>Responsiveness to Patient Preferences=4 items</b>					
Higher=more responsiveness					
Mean (SD)	72.1 (29.0)	73.8 (30.3)	66.9 (27.9)	63.2 (32.9)	69.9 (29.9)
Observed Range	0-100	0-100	0-100	0-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	2.3%	4.2%	1.5%	1.4%	2.5%
Ceiling effects (% highest)	30.3%	40.6%	18.5%	24.3%	29.8%
Skewness statistic	-0.8	-1.00	-0.6	-0.40	-0.7
Internal Consistency	0.77	0.86	0.76	0.87	0.81
Range of item-total	0.34-0.72	0.56-0.80	0.27-0.72	0.57-0.80	0.43-0.74
correlations					
<b>Interpersonal Style</b>					
<b>Friendliness and Courteousness=3 items</b>					
Higher=more friendliness and courteousness					
Mean (SD)	95.1 (13.3)	94.4 (12.1)	96.3 (8.9)	94.2 (14.1)	94.9 (12.5)
Observed Range	5-100	50-100	50-100	25-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.8%	2.0%	1.5%	1.6%	0.3%
Ceiling effects (% highest)	79.4%	75.0%	78.4%	76.6%	77.4%
Skewness statistic	-4.20	-2.40	-3.20	-3.20	-3.50
Internal Consistency	0.77	0.70	0.70	0.89	0.77
Range of item-total	0.69-0.70	0.56-0.64	0.34-0.88	0.75-0.90	0.56-0.65
correlations					

Table 3.7, page ii

	Foreign-Born	US-Born	N=363		
<b>Lack of Perceived Discrimination=7 items</b>					
Higher=less perceived discrimination					
Mean (SD)	97.1 (10.3)	94.8 (12.7)	98.4 (5.1)	95.3 (9.2)	96.0 (10.2)
Observed Range	29-100	25-100	71-100	57-100	25-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling effects (% highest)	75.0%	73.0%	83.1%	65.7%	74.1%
Skewness statistic	4.30	3.40	4.00	2.30	-3.9
Internal Consistency	0.86	0.91	0.75	0.78	0.86
Range of item-total correlations	0.42-0.83	0.54-0.82	0.66-0.81	0.73-0.78	0.48-0.73
<b>Emotional Support=5 items</b>					
Higher=more emotional support					
Mean (SD)	78.8 (19.4)	78.1 (21.4)	76.6 (15.6)	77.9 (20.9)	78.1 (19.6)
Observed Range	0-100	17-100	42-100	8-100	8-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	1.5%	1.0%	1.5%	1.6%	0.3%
Ceiling effects (% highest)	19.9%	21.0%	4.6%	17.2%	16.8%
Skewness statistic	-1.20	-1.10	-0.40	-1.20	-1.1
Internal Consistency	0.73	0.76	0.55	0.83	0.73
Range of item-total correlations	0.30-0.71	0.33-0.59	0.20-0.59 *	0.32-0.82	0.30-0.67

\*Only 1 of the 5 items had a correlation coefficient less than 0.30; All other item-total correlations for these IPC scales were greater than 0.30.

**Table 3.8 Prenatal Interpersonal Processes of Care (PIPC) indices development from subscales: Descriptive statistics and reliability by race/ethnicity.**

	African-American	Latinas		Whites	Total
		Foreign-Born	US-Born		
<b>Communication Index</b>					
Higher=more communication					
Mean (S.D.)	90.1 (15.7)	87.2 (19.1)	87.1 (16.1)	90.7 (12.0)	88.7 (16.6)
Observed Range	16.7-100	14.6-100	16.7-100	12.5-100	12.5-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling effects (% highest)	39.4%	34.1%	21.4%	35.7%	35.0%
Skewness statistic	-2.7	-2.0	-2.1	-2.7	-2.3
Internal Consistency	0.84	0.86	0.77	0.81	0.83
Range, item-total	0.66-0.75	0.70-0.74	0.48-0.71	0.61-0.72	0.66-0.71
correlations					
<b>Decision-making Index*</b>					
Higher=more involvement of person in decision-making					
Mean (SD)	72.1 (29.0)	73.8 (30.3)	66.9 (27.9)	63.2 (32.9)	69.9 (29.9)
Observed Range	0-100	0-100	0-100	0-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	2.3%	4.2%	1.5%	1.4%	2.5%
Ceiling effects (% highest)	30.3%	40.6%	18.5%	24.3%	29.8%
Skewness statistic	-0.8	-1.0	-0.6	-0.4	-0.7
Internal Consistency	0.77	0.86	0.76	0.87	0.81
Range, item-total	0.34-0.72	0.56-0.80	0.27-0.72	0.57-0.80	0.43-0.74
correlations					
<b>Interpersonal Style Index</b>					
Higher=more interpersonal style					
Mean (SD)	90.0 (11.8)	89.1 (12.8)	90.4 (7.2)	94.2 (14.1)	89.7 (11.6)
Observed Range	16.7-100	41.7-100	55.5-100	40.9-100	16.7-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor effects (% lowest)	0.0%	0.0%	0.0%	0.0%	0.0%
Ceiling effects (% highest)	15.1%	18.9%	4.6%	17.1%	14.6%
Skewness statistic	-3.1	-1.8	-1.8	-2.0	-2.4
Internal Consistency	0.78	0.77	0.54	0.80	0.76
Range, item-total	0.45-0.70	0.59-0.61	0.22-0.50	0.59-0.69	0.51-0.64

correlations



**Table 3.9 Satisfaction with Care scale development: Descriptive statistics and reliability of the scale by race/ethnicity.**

	<b>African-American</b>	<b>Latinas</b>		<b>Whites</b>	<b>Total</b>
		<b>Foreign-Born</b>	<b>US-Born</b>		
N	132	96	65	70	363
<b>Satisfaction with Care Scale</b>					
3 items, Higher=more satisfaction					
Mean	80.1	73.0	78.2	81.4	78.4
Std Dev	22.7	23.6	17.5	22.6	22.2
Observed Range	0-100	0-100	25-100	0-100	0-100
Possible Range	0-100	0-100	0-100	0-100	0-100
Floor Effects	0.0	0.0	0.0	0.0	0.0
Ceiling Effects	30.3%	19.8%	21.5%	35.7%	27.0%
Skewness	-1.70	-1.10	-0.70	-1.60	-1.30
Internal Consistency	0.86	0.90	0.68	0.86	0.85
Range of item-total correlations	0.65-0.81	0.74-0.84	0.28-0.71	0.68-0.78	0.63-0.78
Number of item-total correlations $\geq .30$	3/3	3/3	2/3	3/3	3/3



**Table 4.2 Health promotion: rates and standard deviations by race/ethnicity.**

	African-American		Latinas				P Value*		
			Foreign-Born		US-Born			Whites	
	N=132		N=96		N=65				N=70
	Rate	( S.D. )	Rate	( S.D. )	Rate	( S.D. )	Rate	( S.D. )	
<b>Provider Performance</b>									
Vitamins	88.6%	( 31.8 )	94.8%	( 22.3 )	89.2%	( 31.2 )	94.2%	( 23.3 )	0.28
Proper Foods	97.7%	( 14.9 )	96.9%	( 17.5 )	96.9%	( 17.4 )	85.7%	( 35.2 )	0.001
Weight Gain	78.0%	( 41.6 )	89.6%	( 30.7 )	76.9%	( 42.4 )	80.0%	( 40.0 )	0.10
Physical Activity	76.5%	( 42.5 )	79.1%	( 40.8 )	78.5%	( 41.4 )	71.4%	( 45.5 )	0.68
Second-Hand Smoke	85.6%	35.2	83.3%	( 37.4 )	86.2%	( 34.8 )	75.7%	( 43.2 )	0.29
Performance Scale	NA		NA		NA		NA		NA

\*P values for comparison for measures between 0 to 100% with chi-square analysis.

NA= Not Applicable because the scale for Provider Performance of Health Promotion Advice did not have reliability across all ethnic groups (Table 3.1).

**Table 4.3 Psychosocial services: rates and standard deviations by race/ethnicity.**

	African-American		Latinas		Whites		All		P Value*		
	N=132		N=96		N=65		N=363				
	Rate	( S.D. )	Rate	( S.D. )	Rate	( S.D. )	Rate	( S.D. )			
<b>Provider Performance of Needs Assessment</b>											
Mood	67%	( 47% )	73%	( 45% )	57%	( 50% )	56%	( 50% )	64%	( 48% )	0.07
Money	19%	( 39% )	28%	( 45% )	23%	( 42% )	29%	( 46% )	24%	( 43% )	0.31
Food	28%	( 45% )	45%	( 50% )	31%	( 47% )	41%	( 50% )	36%	( 48% )	0.04
Housing	29%	( 45% )	36%	( 48% )	20%	( 40% )	29%	( 46% )	29%	( 46% )	0.16
Parenting	48%	( 50% )	45%	( 50% )	42%	( 50% )	40%	( 49% )	45%	( 50% )	0.65
Abuse	44%	( 50% )	56%	( 50% )	42%	( 50% )	47%	( 50% )	47%	( 50% )	0.21
Performance Scale Mean	39.1	( 4.6 )	47.2	( 3.5 )	36.1	( 5.4 )	35.6	( 5.5 )	40.9	( 3.5 )	0.16
<b>Psychosocial Problems</b>											
Mood	48%	( 50% )	58%	( 50% )	58%	( 50% )	51%	( 50% )	53%	( 50% )	0.39
Money	43%	( 50% )	32%	( 47% )	38%	( 49% )	41%	( 50% )	39%	( 49% )	0.40
Food	23%	( 42% )	21%	( 41% )	20%	( 40% )	20%	( 40% )	21%	( 41% )	0.96
Housing	25%	( 43% )	17%	( 37% )	28%	( 45% )	20%	( 40% )	22%	( 42% )	0.31
Parenting	17%	( 37% )	21%	( 41% )	18%	( 39% )	29%	( 46% )	20%	( 40% )	0.24
Abuse	15%	( 36% )	16%	( 36% )	18%	( 39% )	11%	( 32% )	14%	( 35% )	0.73
Problems Scale Mean	28.5	( 3.5 )	27.4	( 2.7 )	29.0	( 4.1 )	28.8	( 4.2 )	28.4	( 2.7 )	0.98

\*P values for comparison for measures between 0 to 100% with chi-square analysis.

**Table 4.4 Unadjusted differences in Prenatal Interpersonal Processes of Care (PIPC) indices by sample and support service characteristics.**

	Communication Scale		Decision-making Scale		Interpersonal Style Scale	
	Differ-ence	(S.E.)	Differ-ence	(S.E.)	Differ-ence	(S.E.)
<b>Race-Ethnicity</b>						
African-American	2.9	(2.22)	-2.1	(3.98)	0.9	(1.55)
Latina- Foreign Born	reference		reference		reference	
Latina- US Born	-0.1	(2.67)	-7.2	(4.77)	1.3	(1.86)
White	2.5	( 2.60)	-10.8	(4.66)*	0.0	(1.82)
<b>Age</b>						
Less than 20 years	-5.0	(2.60)*	-6.4	(4.70)	-0.8	(1.81)
20 to 29	reference		reference		reference	
30 years or More	-1.4	(1.98)	-5.6	(3.58)	-2.7	(1.38)*
Age (in years)	0.06	(0.15)	-0.29	(0.27)	-0.18	(0.10) <sup>0.07</sup>
<b>Parity</b>						
No previous births	reference		reference		reference	
One or More	-1.9	(1.89)	-6.2	(3.40)*	-3.8	(1.30)***
<b>Marital Status</b>						
Married	reference		reference		reference	
Living together	0.8	(2.35)	1.5	(4.24)	-0.7	(1.64)
Single	0.7	(2.09)	2.2	(3.78)	-0.8	(0.60)
<b>Schooling</b>						
Less than 12 years	0.0	(2.01)	3.5	(3.62)	2.1	(1.40)
12 years	reference		reference		reference	
More than 12 years	1.7	(2.25)	2.8	(4.07)	2.2	(1.57)
Schooling (in years)	0.30	(0.31)	0.02	(0.57)	0.10	(0.22)
<b>Income<sup>+</sup></b>						
Less than \$10,000	-1.6	(0.00)	-0.2	(3.53)	-1.6	(0.00)
\$10,000 to \$20,000	reference		reference		reference	
\$20,000 or more	-2.5	(0.00)	-2.6	(4.30)	-1.0	(0.00)
<b>Prenatal Care Visits</b>						
2 or 3	0.5	(2.26)	-2.2	(4.09)	-0.5	(1.57)
4 or 5	2.2	(2.00)	-0.6	(3.62)	2.0	(1.39)
6 or more	reference		reference		reference	

	Communication Scale		Decision-making Scale		Interpersonal Style Scale	
	Differ-ence	(S.E.)	Differ-ence	(S.E.)	Differ-ence	(S.E.)
<b>Health Status</b>						
Excellent	reference		reference		reference	
Good	-6.5	(1.97) <sup>^</sup>	-14.0	(3.57) <sup>**</sup>	-4.7	(1.34) <sup>^</sup>
Fair/Poor	-13.1	(2.29) <sup>^^^</sup>	-22.3	(4.14) <sup>**</sup>	-11.1	(1.56) <sup>^^^</sup>
<b>Health Promotion</b>						
Vitamin Advice	24.3	(2.84) <sup>^^^</sup>	35.2	(5.30) <sup>^^^</sup>	17.4	(1.97) <sup>^^^</sup>
Eating Advice	30.3	(3.68) <sup>^^^</sup>	40.7	(6.91) <sup>^^^</sup>	16.1	(2.10) <sup>^^^</sup>
Weight Gain Advice	14.6	(2.66) <sup>^^^</sup>	20.0	(3.89) <sup>^^^</sup>	9.3	(1.47) <sup>^^^</sup>
Activity Advice	17.7	(1.83) <sup>^^^</sup>	20.0	(3.32) <sup>^^^</sup>	10.2	(1.32) <sup>^^^</sup>
2/hand Smoke Advice	15.5	(2.18) <sup>^^^</sup>	25.3	(3.98) <sup>^^^</sup>	11.5	(1.51) <sup>^^^</sup>
<b>Psychosocial Services</b>						
Problems Scale	-0.16	(0.03) <sup>^^^</sup>	-0.22	(0.06) <sup>^^</sup>	-0.13	(0.02) <sup>^^^</sup>
Assessment Scale	0.12	(0.02) <sup>^^^</sup>	0.35	(0.04) <sup>^^^</sup>	0.11	(0.02) <sup>^^^</sup>

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001.  
+Per 100 points; ++Per Point on 100 point Scale

**Table 4.5a Final model for associated effects of performance of health promotion advice on Communication scale of Pregnancy Interpersonal Processes of**

		<b>Communication</b>											
		<b>Core Model</b>		<b>Vitamins Model</b>		<b>Eating Model</b>		<b>Weight Gain Model</b>		<b>Activity Model</b>		<b>Secondhand</b>	
		Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )	Differ- ence	( SE )
<b>Race-Ethnicity</b>													
	African-American	2.5	( 2.1 )	4.1	( 2.0 )*	2.3	( 1.9 )	4.2	( 2.0 )*	3.1	( 1.9 )	2.3	( 2.0 )
	Latina- Foreign Born	reference		reference		reference		reference		reference		reference	
	Latina- US Born	-0.6	( 2.6 )	1.1	( 2.4 )	-0.5	( 2.3 )	1.4	( 2.4 )	-0.2	( 2.2 )	-0.7	( 2.4 )
	White	2.3	( 2.5 )	2.6	( 2.3 )	5.6	( 2.3 )	3.7	( 2.3 )	3.7	( 2.3 )	3.4	( 2.3 )
<b>Health Status</b>													
	Excellent	reference		reference		reference		reference		reference		reference	
	Good	-4.7	( 1.4 )**	-3.7	( 1.2 )*	-3.7	( 1.9 )*	-3.7	( 1.9 ) <sup>0.06</sup>	-2.9	( 1.9 )	-4.2	( 1.9 )*
	Fair/Poor	-11.1	( 1.4 )^^	-8.2	( 2.2 )^^	-9.7	( 2.2 )^^^	-10.2	( 2.2 )^^^	-7.6	( 2.2 )^^	-9.8	( 2.3 )^v
<b>Psychosocial Problems</b>													
	per point on 100 pt scale	-0.11	( 0.03 )^	-0.11	( 0.03 )^^	-0.10	( 0.03 )^^	-0.08	( 0.03 )***	-0.10	( 0.03 )^^	-0.07	( 0.03 )*
<b>Age</b>													
	Less than 20 years	-4.9	( 2.5 )*	-4.0	( 2.3 ) <sup>0.07</sup>	-4.7	( 2.3 )*	-5.2	( 2.4 )*	-3.4	( 2.3 )	-5.7	( 2.4 )**
	20 to 29	reference		reference		reference		reference		reference		reference	
	30 years or More	-0.5	( 1.9 )	1.3	( 1.7 )	-1.0	( 1.7 )	0.6	( 1.8 )	0.3	( 1.7 )	-0.5	( 1.8 )
<b>Performance of Health Promotion Advice</b>													
	per 100 point			22.4	( 2.8 )^^^	29.4	( 3.6 )^^^	13.3	( 2.1 )^^^	15.8	( 1.8 )^^^	11.1	( 1.7 )^v
<b>Model Fit</b>													
	Variance explained	11.6%		25.2%		25.6%		20.7%		27.1%		20.1%	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

**Table 4.5b Final model for associated effects of performance of health promotion advice on Decision-making scale of Pregnancy Interpersonal Processes of Care.**

		Decision-making									
Core Model		Vitamins Model		Eating Model		Weight Gain Model		Activity Model		Secondhand Smoke Model	
Differ- ence ( SE )		Differ- ence ( SE )		Differ- ence ( SE )		Differ- ence ( SE )		Differ- ence ( SE )		Differ- ence ( SE )	
<b>Race-Ethnicity</b>											
African-American	-3.5 ( 3.8 )	-1.4 ( 3.7 )	-3.7 ( 3.7 )	-1.6 ( 3.8 )	-2.3 ( 3.5 )	-3.9 ( 3.7 )					
Latina- Foreign Born	reference	reference	reference	reference	reference	reference					
Latina- US Born	-10.0 ( 4.6 )*	-7.7 ( 4.4 ) <sup>0.08</sup>	5.6 ( 4.4 )*	-7.8 ( 4.5 ) <sup>0.07</sup>	-8.9 ( 4.2 )*	-10.3 ( 4.4 )**					
White	-12.1 ( 4.4 )***	-11.7 ( 4.2 )***	-8.2 ( 4.4 ) <sup>0.07</sup>	-10.5 ( 4.4 )**	-9.6 ( 4.1 )**	-10.5 ( 4.3 )**					
<b>Health Status</b>											
Excellent	reference	reference	reference	reference	reference	reference					
Good	-11.6 ( 3.7 )***	-10.1 ( 3.5 )***	-10.6 ( 3.6 )***	-10.4 ( 3.6 )***	-8.5 ( 3.4 )**	-10.9 ( 3.6 )*					
Fair/Poor	-20.2 ( 4.3 ) <sup>^^^</sup>	-10.1 ( 3.5 ) <sup>^^^</sup>	-18.9 ( 4.2 ) <sup>^^^</sup>	-19.3 ( 4.2 ) <sup>^^^</sup>	-14.5 ( 4.0 ) <sup>^^</sup>	-18.2 ( 4.2 )***					
<b>Psychosocial Problems</b>											
per point on 100 pt scale	-0.12 ( 0.06 )*	-0.12 ( 0.06 )*	-0.10 ( 0.06 ) <sup>0.06</sup>	-0.09 ( 0.06 )	-0.10 ( 0.03 ) <sup>^^</sup>	-0.07 ( 0.06 )					
<b>Parity</b>											
No previous births	reference	reference	reference	reference	reference	reference					
One or More	-4.8 ( 3.3 )	-3.8 ( 3.1 )	-3.3 ( 3.2 )	-3.5 ( 3.2 )	-3.3 ( 3.0 ) <sup>0.06</sup>	-3.9 ( 3.2 )					
<b>Performance of Health Promotion Advice</b>											
per 100 point		30.7 ( 5.2 ) <sup>^^^</sup>	33.8 ( 6.8 ) <sup>^^^</sup>	15.6 ( 3.8 ) <sup>^^^</sup>	27.3 ( 3.3 ) <sup>^^^</sup>	20.5 ( 4.0 ) <sup>^^^</sup>					
<b>Model Fit</b>											
Variance explained	11.1%	18.9%	16.6%	14.8%	25.4%	17.1%					

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001



**Table 4.5c Final model for associated effects of performance of health promotion advice on Interpersonal Style scale of Pregnancy Interpersonal Proces**

		<b>Interpersonal Style</b>									
		<b>Core Model</b>		<b>Vitamins Model</b>		<b>Eating Model</b>		<b>Weight Gain Model</b>		<b>Activity Model</b>	
		Differ-ence	( SE )	Differ-ence	( SE )	Differ-ence	( SE )	Differ-ence	( SE )	Differ-ence	( SE )
<b>Race-Ethnicity</b>											
African-American		0.4	( 1.4 )	1.5	( 1.3 )	0.3	( 1.4 )	1.3	( 1.4 )	0.8	( 1.4 )
Latina- Foreign Born		reference		reference		reference		reference		reference	
Latina- US Born		0.0	( 1.7 )	1.2	( 1.6 )	0.1	( 1.6 )	1.1	( 1.7 )	0.3	( 1.6 )
White		-0.8	( 1.7 )	-0.5	( 1.5 )	0.9	( 1.6 )	3.7	( 2.3 )	0.0	( 1.6 )
<b>Health Status</b>											
Excellent		reference		reference		reference		reference		reference	
Good		-2.7	( 1.4 ) *	-2.0	( 1.3 )	-2.3	( 1.3 ) <sup>0.09</sup>	-2.2	( 1.3 )	-1.8	( 1.3 )
Fair/Poor		-8.8	( 1.6 ) <sup>^^^</sup>	-6.9	( 1.5 ) <sup>^^^</sup>	-8.3	( 1.6 ) <sup>^^^</sup>	-8.4	( 1.6 ) <sup>^^^</sup>	-7.1	( 1.5 )
<b>Psychosocial Problems</b>											
per point on 100 pt scale		-0.09	( 0.02 ) <sup>^^^</sup>	-0.09	( 0.02 ) <sup>^^^</sup>	-0.09	( 0.02 ) <sup>^^^</sup>	-0.08	( 0.02 ) <sup>^^</sup>	-0.09	( 0.02 )
<b>Parity</b>											
No previous births		reference		reference		reference		reference		reference	
One or More		-2.7	( 1.3 ) *	-2.4	( 1.2 ) *	-2.0	( 1.2 )	-2.2	( 1.2 ) <sup>0.07</sup>	-2.3	( 1.2 )
<b>Performance of Health Promotion Advice</b>											
per 100 point				15.3	( 1.9 ) <sup>^^^</sup>	14.0	( 2.5 ) <sup>^^^</sup>	7.5	( 1.4 ) <sup>^^^</sup>	8.3	( 1.3 )
<b>Model Fit</b>											
Variance explained		16.6%		29.7%		23.0%		22.5%		25.3%	

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

**Table 4.6 Final models for associated effects of performance of psychosocial needs assessment on Communication, Decision-making and Interpersonal Style scales of Pregnancy Interpersonal Processes of Care.**

	Communication				Decision-making				Interpersonal Style			
	Core Model		Psychosocial Service Model		Core Model		Psychosocial Service Model		Core Model		Psychosocial Service Model	
	Difference	( SE )	Difference	( SE )	Difference	( SE )	Difference	( SE )	Difference	( SE )	Difference	( SE )
<b>Race-Ethnicity</b>												
African-American	2.6	( 2.1 )	3.2	( 2.1 )	-3.3	( 3.8 )	-0.3	( 3.6 )	0.5	( 1.4 )	1.4	( 1.4 )
Latina- Foreign Born	reference		reference		reference		reference		reference		reference	
Latina- US Born	-0.6	( 2.5 )	0.1	( 2.5 )	-9.3	( 4.6 )*	-4.9	( 4.3 )	-1.3	( 1.7 )	1.6	( 1.7 )
White	2.2	( 2.5 )	2.8	( 2.4 )	-12.0	( 4.4 )***	-9.4	( 4.2 )*	-0.7	( 1.7 )	0.2	( 1.6 )
<b>Health Status</b>												
Good	-4.4	( 2.0 )*	-3.6	( 2.0 ) <sup>0.07</sup>	-11.3	( 3.7 )***	-8.7	( 3.5 )**	-2.7	( 1.4 )*	-1.9	( 1.3 )
Fair/Poor	-11.0	( 2.4 ) <sup>^^^</sup>	-9.7	( 2.3 ) <sup>^^^</sup>	-20.2	( 4.3 ) <sup>^^^</sup>	-17.0	( 4.0 ) <sup>^^^</sup>	-8.8	( 1.6 ) <sup>^^^</sup>	-7.8	( 1.5 ) <sup>^^^</sup>
<b>Psychosocial Problems</b>												
per point on 100 pt scale	-0.11	( 0.03 ) <sup>^</sup>	-0.11	( 0.03 ) <sup>^</sup>	-0.12	( 0.06 ) <sup>*</sup>	-0.11	( 0.06 ) <sup>*</sup>	-0.09	( 0.02 ) <sup>^^^</sup>	-0.09	( 0.02 ) <sup>^^^</sup>
<b>Age</b>												
Less than 20 years	-5.9	( 2.6 )*	-5.8	( 2.5 )*	-7.8	( 4.7 ) <sup>0.10</sup>	-3.7	( 3.3 )	-2.1	( 1.8 )	-1.9	( 1.7 )
20 to 29	reference		reference		reference		reference		reference		reference	
30 years or More					-3.7	( 3.4 )	-2.1	( 3.2 )	-1.6	( 1.3 )	-1.1	( 1.2 )
<b>Parity</b>												
None	reference		reference		reference		reference		reference		reference	
One or more previous births	-2.4	( 1.9 )	-1.6	( 1.9 )	-5.9	( 3.5 ) <sup>0.10</sup>	-3.7	( 3.3 )	-3.2	( 1.3 )**	-2.5	( 1.3 )*
<b>Performance of Psychosocial Needs Assessment</b>												
per point on 100 pt scale			0.11	( 0.02 ) <sup>^^^</sup>			0.30	( 0.04 ) <sup>^^^</sup>			0.10	( 0.02 ) <sup>^^^</sup>
<b>Model Fit</b>												
Variance explained	12.0%		16.5%		11.4%		23.2%		16.7%		24.7%	

\*P<0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

**Table 4.7 Unadjusted regression coefficients for Satisfaction with Care by sample, support service and PIPC scale characteristics.**

Demographic Characteristic	Satisfaction with Care			Support Service, Interpersonal Care	Satisfaction with Care		
	Difference	(	S.E. )		Difference	(	S.E. )
<b>Race-Ethnicity</b>				<b>Health Promotion Services</b>			
African-American	7.6	(	3.0 )***	<b>Vitamin Advice</b>			
Latina- Foreign Born			reference	per 100 point	29.5	(	3.9 )^^^
Latina- US Born	5.1	(	3.5 )	<b>Eating Advice</b>			
White	8.4	(	3.5 )*	per 100 point	22.5	(	5.3 )^^^
<b>Age</b>				<b>Weight Gain Advice</b>			
Less than 20 years	-5.7	(	3.5 )	per 100 point	11.1	(	2.9 )^^
20 to 29			reference	<b>Physical Activity Advice</b>			
30 years or More	-0.7	(	2.7 )	per 100 point	14.6	(	2.7 )^^^
Age (in years)				<b>Secondhand Smoke Advice</b>			
	0.0	(	0.2 )	per 100 point	16.5	(	3.0 )^^^
<b>Parity</b>				<b>Psychosocial Services</b>			
No previous births			reference	<b>Problems Scale</b>			
One or More	-3.5	(	2.5 )	per point on 100 pt scale	-0.15	(	0.04 )^^
Marital Status				<b>Assessment Scale</b>			
<b>Married</b>			reference	per point on 100 pt scale	0.17	(	0.03 )^^^
Living together	1.4	(	3.2 )	<b>Interpersonal Care (PIPC)</b>			
Single	0.4	(	2.8 )	<b>Communications</b>			
<b>Schooling</b>				per point on 100 pt scale	0.78	(	0.06 )^^^
Less than 12 years	0.2	(	2.7 )	<b>Decision-making</b>			
12 years			reference	per point on 100 pt scale	0.37	(	0.03 )^^^
More than 12 years	3.1	(	3.0 )	<b>Interpersonal Style</b>			
Schooling (in years)	0.6	(	0.4 )	per point on 100 pt scale	1.26	(	0.08 )^^^
<b>Income+</b>				<b>Health Status</b>			
Less than \$10,000	-4.8	(	2.6 )	Excellent, Very Good	reference		
\$10,000 to \$20,000			reference	Good	-15.6	(	2.2 )^^^
\$20,000 or more	-4.2	(	3.2 )	Fair, Poor	0.0	(	0.0 )^^^
<b>Prenatal Care Visits</b>							
2 or 3	-3.4	(	3.0 )				
4 or 5	1.1	(	2.7 )				
6 or more			reference				

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

Table 4.8 Final model for associated effects of performance of health promotion advice on Satisfaction with Care.

	Satisfaction with Care													
	Core Model (without PIPC)		Core Model (with PIPC)		Vitamins Model		Eating Model		Weight Gain Model		Activity Model		Secondhand Smo Model	
	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	Differ- ence ( SE )	
<b>Race-Ethnicity</b>														
African-American	6.0 ( 2.8 )*	5.3 ( 2.2 )**	5.9 ( 2.2 )***	5.3 ( 2.2 )**	5.1 ( 2.2 )**	5.2 ( 2.2 )**	5.3 ( 2.2 )*							
Latina- Foreign Born	reference	reference	reference	reference	reference	reference	reference							
Latina- US Born	2.7 ( 3.3 )	3.2 ( 2.6 )	3.7 ( 2.6 )	3.2 ( 2.6 )	3.0 ( 2.6 )	3.3 ( 2.6 )	3.2 ( 2.6 )							
White	7.2 ( 3.2 )*	7.7 ( 2.6 )***	7.9 ( 2.6 )***	7.7 ( 2.6 )***	7.6 ( 2.6 )***	7.7 ( 2.6 )***	7.9 ( 2.6 )*							
<b>Health Status</b>														
Good	-10.2 ( 2.7 )^^	-5.6 ( 2.1 )^^	-5.5 ( 2.1 )***	-5.6 ( 2.1 )^	-5.7 ( 2.1 )^^	-5.7 ( 2.1 )^^	-5.6 ( 2.1 )^							
Fair, Poor	-19.9 ( 3.1 )^^^	-8.2 ( 2.5 )^^^	-8.1 ( 2.5 )^^	-8.2 ( 2.6 )^^	-8.2 ( 2.6 )^^^	-8.3 ( 2.6 )^^^	-8.2 ( 2.6 )^^							
<b>Psychosocial Problems Scale</b>														
per point on 100 pt scale	-0.07 ( 0.04 ) <sub>.06</sub>	0.045 ( 0.03 )	0.038 ( 0.03 )	0.05 ( 0.03 )	0.04 ( 0.03 )	0.045 ( 0.03 )	0.05 ( 0.04 )							
<b>Interpersonal Care (PIPC)</b>														
<b>Communications</b>														
per point on 100 pt scale		0.23 ( 0.08 )***	0.20 ( 0.08 )**	0.23 ( 0.08 )***	0.24 ( 0.08 )***	0.24 ( 0.08 )***	0.23 ( 0.08 )*							
<b>Decision-making</b>														
per point on 100 pt scale		0.05 ( 0.04 )	0.05 ( 0.04 )	0.05 ( 0.04 )	0.05 ( 0.04 )	0.06 ( 0.04 )	0.05 ( 0.04 )							
<b>Interpersonal Style</b>														
per point on 100 pt scale		0.86 ( 0.11 )^^^	0.81 ( 0.11 )^^^	0.86 ( 0.11 )^^^	0.87 ( 0.11 )^^^	0.86 ( 0.11 )^^^	0.85 ( 0.11 )^							
<b>Performance of Health Promotion Advice</b>														
per 100 points			7.4 ( 3.4 )*	-0.3 ( 4.4 )	-1.6 ( 2.4 )	-1.3 ( 2.3 )	1.4 ( 2.5 )							
<b>Model Fit</b>														
Variance explained	14.8%	48.2%	48.7%	48.0%	48.1%	48.1%	48.1%							

\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005, ^^P<0.0001

**Table 4.9 Final models for associated effects of performance of psychosocial needs assessment on Satisfaction with Care.**

<b>Satisfaction with Care</b>								
	<b>Core Model (without PIPC)</b>		<b>Core Model (with PIPC)</b>		<b>Psychosocial Service Model (without PIPC)</b>		<b>Psychosocial Service Model (with PIPC)</b>	
	Differ-ence	( SE )	Differ-ence	( SE )	Differ-ence	( SE )	Differ-ence	( SE )
<b>Race-Ethnicity</b>								
African-American	6.0	( 2.8 )*	5.3	( 2.2 )**	7.4	( 2.7 )***	5.4	( 2.2 )**
Latina- Foreign Born	reference		reference		reference		reference	
Latina- US Born	2.7	( 3.3 )	3.2	( 2.6 )	4.7	( 3.3 )	3.4	( 2.6 )
White	7.2	( 3.2 )*	7.7	( 2.6 )***	8.3	( 3.2 )***	7.8	( 2.6 )***
<b>Health Status</b>								
Good	-10.2	( 2.7 )^^	-5.6	( 2.1 )^^	-8.8	( 2.6 )^	-5.5	( 2.1 )***
Fair, Poor	-19.9	( 3.1 )^^^	-8.2	( 2.5 )^^^	-18.2	( 3.0 )^^^	-8.2	( 2.5 )***
<b>Psychosocial Problems Scale</b>								
per point on 100 pt scale	-0.07	( 0.04 ) <sup>06</sup>	0.05	( 0.03 )	-0.06	( 0.04 )	0.04	( 0.03 )
<b>Interpersonal Care (PIPC)</b>								
<b>Communications</b>								
per point on 100 pt scale			0.23	( 0.08 )***			0.24	( 0.08 )***
<b>Decision-making</b>								
per point on 100 pt scale			0.05	( 0.04 )			0.05	( 0.04 )
<b>Interpersonal Style</b>								
per point on 100 pt scale			0.86	( 0.11 )^^^			0.85	( 0.11 )^^^
<b>Performance of Psychosocial Needs Assessment</b>								
per point on 100 pt scale					0.15	( 0.03 )^^^	0.02	( 0.06 )
<b>Model Fit</b>								
Variance explained	14.8%		48.2%		19.5%		48.1%	

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\*P= or <0.05, \*\*P<0.02, \*\*\*P<0.01, ^P<0.001, ^^P<0.0005,  
^^^P<0.0001

## **Appendix A**

### **Sample Characteristics: Survey items and responses**

**Appendix A, Table A1. Demographic and background items and responses.**

<b>Construct Variable Age</b>	<b>Source Variable</b>	<b>Question</b>	<b>Response scale</b>	<b>Recode</b>
	inc5age	How old are you?	___years	age
<b>Parity</b>	bg7	How many babies have you had [who were born alive]?	__ babies	parity
<b>Marital Status</b>	bg4	Are you:	1=Married 2=Living as married 3=Single	No
<b>Years of School Completed</b>	bg5	How many years of school have you completed?	___years	edu
<b>Income</b>	bg8	Is your yearly family income typically:	7 income groups	income
<b>Health Status</b>	ipc52	In general, would you say that your health during this pregnancy so far has been:	1=Poor 2=Fair 3=Good 4=Very Good 5=Excellent	4=Excellent 3=Very Good 2=Good 1=Fair 0= Poor
<b>Visits</b>				
<b>Race/ethnicity</b>		To which of the following ethnic group do you consider yourself to belong? (People answering anything but 1 or 2 or 3, or any combination were excluded)	1=African-American, or Black	2=Latino, Hispanic, Chicano or other Latin American 3=White, Caucasian or European



## **Appendix B**

### **Health Promotion: Survey items and responses**

## Appendix B, Table B1. Taking vitamins, items and responses.

General Importance of Advice						Observed							
Construct	Source												
Variable	Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
VitAt	tcc1	How important do you think it is for pregnant women to be given advice at a prenatal care visit about taking vitamins and minerals?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of Advice	363	3.61	0.51	4	2	4	0%	63%
<b>Provider Performance</b>													
VitPerf	tcc2	At any prenatal care visit, did a doctor, nurse or other provider give you advice about taking vitamins and minerals?	Response 1=Yes 0=No	Recode 1=Yes 0=No	Notes Provider Performance	N 363	Mean 91%	Std Dev 28%	Median 1	Min 0	Max 1	Floor NA	Ceiling NA
<b>Taking Vitamins</b>													
VitCmpl	tcc4	In the last month, how many days a week did you take vitamins or minerals ?	Response Per week: 5=Every day 4=5 to 6 days 3=3 to 4 days 2=1 to 2 days 1=No days	Recode Per week: 4=Every day 3=5 to 6 days 2=3 to 4 days 1=1 to 2 days 0=No days	Notes Recommended behavior is to take vitamins every day	N 363	Mean 3.47	Std Dev 1.07	Median 4	Min 0	Max 4	Floor 5%	Ceiling 75%

**Appendix B, Table B2. Eating proper foods, items and responses.**

**General Importance of Advice**

Construct	Source					Observed							
Variable	Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PropAt	tcc5	How important do you think it is for pregnant women to be given advice at a prenatal care visit about eating proper foods?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.44	0.53	3	2	4	0%	46%

**Provider Performance**

Construct	Source		Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PropPerf	tcc6	At any prenatal care or WIC visit, did a doctor, nurse or other provider give you advice about eating proper foods?	1=Yes 2=No	1=Yes 0=No	Whether a Provider gave advice	363	95%	11%	1	0	1	NA	NA

**Eating Proper Foods**

Construct	Source	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PrpCmpl1	tcc8	The following three questions are combined to make composite scores for healthy eating behavior: Thinking back to yesterday, how many times did you eat a meal or snack?	Times: 5=5 or more 4=4 3=3 2=2 1=1	Times: 4=5 or more 3=4 2=3 1=2 0=1	Recommended behavior is to eat frequent small meals, 4 is best	363	3.00	1.08	3	0	4	2%	45%
PrpCmpl2	tcc8a	Thinking back to when you ate yesterday, what was the longest time you went without eating a meal or snack?	Hours: 5=6 or more 4=5 or 6 3=3 or 4 2=1 or 2 1=less than	Hours: 4=less than 1 3=1 or 2 2=3 or 4 1=5 or 6 0=more than	Recommended behavior is to not to go more than an hour without eating some food, 4 is best	363	2.31	0.92	2	0	4	4%	7%
PrpCmpl3	tcc9a, 9b, 9c, 9d, 9e, 9f	When you ate yesterday, did you eat any (9a) dairy products or (9b) dairy substitute products, (9c) protein products, (9d) grain products, (9e) fruits at least 2 times and (9f) vegetables at least 2 times?	For each of 5 different food types: 1=Yes 2=No	No. of "Yes" Responses: 4=5 yeses 3=4 2=3 1=2 0=1 or less	If 9a or 9b is Yes, then Dairy Products is Yes; Recommended behavior is at least one of every food group, and 2 fruits and 2 vegetables, score of 4 is best 12 is best.	363	3.16	0.90	4	0	4	1%	42%
PrpCmpl	PrpCmpl1+ PrpCmpl2+ PrpCmpl3	Combined questions: The unweighted sum of the responses to the 3 questions on eating behaviors: how many times a woman ate, how long she went without eating and how many types of nutritious foods she ate.	PrpCmpl1+ PrpCmpl2+ PrpCmpl3	Total No. of "Yes" Responses: Possible Range 0 to 12, 12 is best.		363	8.48	2.22	9	0	12	0%	3%
PrpCmpl8	PrpCmpl1+ PrpCmpl2+ (2 x PrpCmpl3)	Combined questions: The sum of the response values for the 3 eating behaviors with the response for how many types of nutritious foods eaten weighted twice as much as the response values for how many times a woman ate and how long she went without eating.	PrpCmpl1+ PrpCmpl2+ (2 x PrpCmpl3)	Possible range 0 to 16, 16 is best	16 is best. This composite was created since there are two questions getting at the same concept of eating frequently, and since the content of what was eaten is just as important if not more important than frequency of eating during the day,	363	11.64	2.93	12	0	16	0%	3%

**Appendix B, Table B3. Proper weight gain, items and responses.**

General Importance of Advice											Observed			
Construct Variable	Source Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling	
wtgnAt	tcc10	How important do you think it is for pregnant women to be given advice at a prenatal care visit about how much weight to gain during pregnancy?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.16	0.67	3	1	4	0%	30%	
Provider Performance														
wtgnPerf	tcc11	At any prenatal care or WIC visit, did a doctor, nurse or other provider give you advice about how much weight to gain?	1=Yes 2=No	1=Yes 0=No	Whether a Provider gave advice	363	81%	39%	1	0	1	NA	NA	
Weight Gain														
wtgncmpl		The following four questions are combined to code for healthy weight gain behavior:		See below:	Recommended weight gain behavior during pregnancy is determined from a woman's Prepregnancy Weight-for-height category and the Weight Gain guidelines in the CPSP Provider Handbook "Steps to Take", 1997: Nutr-4, Table 1 "How to Assess Weight Gain;" and Tab	334	62%	49%	1	0	1	NA	NA	
	tcc13a	How much did you weigh before you got pregnant?	In Pounds	Prepregnancy Weight-for-height categories: Underweight=1, Normal=2 Overweight/ Obese=3	Recommended weight gain behavior during pregnancy is determined from a woman's Prepregnancy Weight-for-height category and the Weight Gain guidelines in the CPSP Provider Handbook "Steps to Take", 1997: Nutr-4, Table 1 "How to Assess Weight Gain;" and Tab	[Weight /Height Table and Recommended Weight Gain Table in CPSP Providers Handbook, 1997]								
	tcc13cft tcc13cin	How tall are you without shoes?	In Feet and Inches											
	inc4val	What is your expected due date?	Due Date.	Gestational age in days on the date of the survey is determined counting backwards from Due Date										
	tcc13d	How much weight did you gain in the last month?	In Pounds	If Weight Gain within one pound of the recommended limits for the woman's Weight-for-height category, then Wtgncmpl=1 otherwise Wtgncmpl=0.										
Alternate variable	tcc13d	How much weight did you gain in the last month?	In Pounds	If Weight Gain within 1 pound of the recommended limits for the woman's Weight-for-height category, then Wtgncmpl=4 2 pounds, then Wtgncmpl=3 3 pounds, then Wtgncmpl=2 4 pounds, then Wtgncmpl=1		N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling	
						334	2.59	1.55	3	0	4	18.3%	43.4%	



**Appendix B, Table B5. Secondhand smoke, items and responses.**

**General Importance of Advice**

Construct	Source					Observed							
Variable	Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
_2HSA	tcc28	How important do you think it is for pregnant women to be given advice at a prenatal care visit about not being around those who smoke at home, at work or any other	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.47	0.58	4	1	4	0%	51%

**Provider Performance**

Construct	Source		Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
_2HSPerf	tcc29	At any prenatal care visit, did a doctor, nurse or other provider give you advice about not being around those	1=Yes 2=No	1=Yes 0=No	Provider Performance	363	83%	37%	1	0	1	NA	NA

**Avoiding Secondhand Smoke**

Construct	Source		Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
SmokCmpl		The following two questions are combined to code for healthy behavior related to avoiding secondhand smoke:											
_2HSCmp1	tcc31	In the last month, how many days a week were you around people who smoked ?	Per week: 5=No days 4=A few days 3=Some days 2=Most days 1=Nearly every day	Per week: 4=No days 3=A few days 2=Some days 1=Most days 0=Nearly every day	Recommended behavior is to not be around people who smoke at all	363	2.89	1.41	3	0	4	48%	14%
_2HSCmp2	tcc32	Do you now smoke cigarettes	1=Yes 2=No	1=Yes 0=No	Recommended behavior is to not smoke at all	363	0.05	0.23	0	0	1	94%	6%

## **Appendix C**

### **Psychosocial Service: Survey items and responses**

**Appendix C, Table C1. Mood problems and depression, items and responses.**

Mood Problems			Response	Recode	Notes	N	Mean	Std Dev	Median	Observed		Floor	Ceiling
										Min	Max		
PsyProbM	tcc34	During your pregnancy have you had any problems with stress, anxieties, blues or moodiness	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No		363	53%	NA	NA	0	1	NA	NA
General Importance of Advice			Response	Recode	Notes	N	Mean	Std Dev	Median	Observed		Floor	Ceiling
Construct Variable	Source Variable	Question								Min	Max		
MoodAt	tcc35	How important do you think it is for pregnant women to be given advice at a prenatal care visit about problems with stress, depression, blues or moodiness?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.35	0.55	3	2	4	0%	38%
Provider Initiation of Service			Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PsyInitM	tcc36	At any prenatal care visit, did a doctor, nurse or other provider ask you whether you had any problems with stress, depression, blues or moodiness?											
Provider Intervention			Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PsyEligM	tcc34, tcc36	Women who had a problem and were asked about a problem were asked questions tcc36a, tcc36b and 37 [skip pattern]											
PsyAdvcm	tcc36a	Did someone give you counseling or information about people or programs that could help with your problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No	77% (90) Eligible Women received advice or referral	117	77%	NA	NA	0	1	NA	NA
PsyFolIM	tcc37	With your problems, did you get help with your problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No	52.% got follow-up; 2 respondents answered they Didn't Know	115	52%	NA	NA	0	1	NA	NA
Patient Follow-through			Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PsyCmplM	tcc36a, tcc36b	Did you try to contact any of the people or programs you were told about? [asked of women who said Yes to tcc36a [skip pattern]]											



**Appendix C, Table C2. Money problems, items and responses.**

<b>Money Problems</b>		Response	Recode	Notes	N	Mean	Std Dev	Median	Observed				
Variable	Source	Question	Response	Recode	Notes	Mean	Std Dev	Median	Min	Max	Floor	Ceiling	
PsyProbS	tcc38	During your pregnancy have you had any problems with not having enough money?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No		363	39%	49%	NA	0	1	NA	NA
<b>General Importance of Advice</b>									Observed				
Construct	Source	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
Variable	Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
MonyAt	tcc39	How important do you think it is for pregnant women to be given advice at a prenatal care visit about problems with not having enough money?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.09	0.81	3	0	4		
<b>Provider Initiation of Service</b>													
PsyInitS	tcc40	At any prenatal care visit, did a doctor, nurse or other provider ask you whether you had any problems with not having enough money?	Response 1=Yes 2=No 8=Don'tKnow 9=Refused	Recode 1=Yes 0=No	Notes Provider Performance	363	24%	43%	NA	0	1	NA	NA
<b>Provider Intervention</b>													
PsyEligS	tcc38, tcc40	Women who had a problem and were asked about a problem were asked questions tcc40a and 41 [skip pattern]	Response tcc38=1 and tcc40=1	Recode PsyElig=1 if PsyProb=1 and PsyInit= 1; Otherwise PsyElig=0.	Notes 9% of 363 (31) Women with problems should have gotten advice.	363	9%		NA	0	1	NA	NA
PsyAdvcS	tcc40a	Did someone give you counseling or information about people or programs that could help with your problems?	Response 1=Yes 2=No 8=Don'tKnow 9=Refused	Recode 1=Yes 0=No	Notes 58% (18) Eligible Women received advice or referral	31	58%	19%	NA	0	1	NA	NA
PsyFollS	tcc41	Did someone follow-up to see if you had gotten help with your problems?	Response 1=Yes 0=No	Recode 1=Yes 0=No	Notes 56% got follow-up	31	56%		NA	0	1	NA	NA
<b>Patient Follow-through</b>													
PsyActnS	tcc40b	Did you try to contact any of the people or programs you were told about? [asked of women who said Yes to tcc40a [skip pattern]	Response 1=Yes 2=No 8=Don'tKnow 9=Refused	Recode PsyComp=1 if tcc36a=1 and tcc36b= 1 ; PsyComp=0 if tcc36a=1 and tcc36b= 2.	Notes Patient Compliance	18	72%		NA	0	1	NA	NA

**Appendix C, Table C3. Problems getting sufficient food, items and responses.**

<b>Food Problems</b>		Response	Recode	Notes	N	Mean	Std Dev	Median	<u>Observed</u>			
Variable	Source	Question	Response	Recode	Notes	Mean	Std Dev	Median	Min	Max	Floor	Ceili
PsyProbF	tcc42	During your pregnancy have you had any problems being able to afford enough food to eat?	1=Yes 0=No	1=Yes 0=No		21%	41%	NA	0	1	NA	N/
<b>General Importance of Advice</b>									<u>Observed</u>			
Variable	Source	Question	Response	Recode	Notes	Mean	Std Dev	Median	Min	Max	Floor	Ceili
FoodAt	tcc43	How important do you think it is for pregnant women to be given advice at a prenatal care visit about how to get help with getting enough food to eat?	1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	3.3	0.6	4	2	4		
<b>Provider Initiation of Service</b>			Response	Recode	Notes	Mean	Std Dev	Median	Min	Max	Floor	Ceili
PsyInitF	tcc44	At any prenatal care visit, did a doctor, nurse or other provider ask you whether you had any problems getting enough food to eat?	1=Yes 0=No	1=Yes 0=No	Provider Performance	36%	48%	NA	0	1	NA	N/
<b>Provider Intervention</b>			Response	Recode	Notes	Mean	Std Dev	Median	Min	Max	Floor	Ceili
PsyEligF	tcc42, tcc44	Women who had a problem and were asked about a problem were asked questions tcc44a and 45 [skip pattern]	tcc42=1 and tcc44=1	PsyElig=1 if PsyProb=1 and PsyInit=1; Otherwise PsyElig=0.	9% of 363 (31) Women with problems should			NA	0	1	NA	N/
PsyAdvcF	tcc44a	Did someone give you counseling or information about people or programs that could help with your problems?	1=Yes 0=No	1=Yes 0=No	Provider Performance	98%	15%	NA	0	1	NA	N/
PsyFollF	tcc44 and tcc44a	Did someone follow-up to see if you had gotten help with your problems?	1=Yes 0=No	1=Yes 0=No	Provider Performance			NA	0	1	NA	N/
<b>Patient Follow-through</b>			Response	Recode	Notes	Mean	Std Dev	Median	Min	Max		
PsyCmplF	tcc40b	Did you try to contact any of the people or programs you were told about?	1=Yes 0=No	1=Yes 0=No	Patient Compliance			NA	0	1	NA	N/

**Appendix C, Table C4. Housing problems, items and responses.**

Housing Problems		Response	Recode	Notes	N	Mean	Std Dev	Median	Observed		NA	NA	
									Min	Max			
PsyProbH	tcc46	During your pregnancy have you had any problems with housing, such as rent, eviction, landlord, getting basic repairs?	1=Yes 0=No	1=Yes 0=No	363	22%	42%	NA	0	1	NA	NA	
<b>General Importance of Advice</b>													
Construct	Source	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
HousAt	tcc47	How important do you think it is for pregnant women to be given advice at a prenatal care visit about how to get help with housing problems?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.2	0.7	3	0	4	Floor	Ceiling
<b>Provider Initiation of Service</b>													
PsyInith	tcc48	At any prenatal care visit, did a doctor, nurse or other provider ask you whether you had any housing problems?	1=Yes 0=No	1=Yes 0=No	Provider Performance	363	29%	46%	NA	0	1	NA	NA
<b>Provider Intervention</b>													
PsyEligH	tcc46, tcc48	Women who had a problem and were asked about a problem were asked questions tcc48a and 49 [skip pattern]	tcc46=1 and tcc48=1	PsyElig=1 if PsyProb=1 and PsyInith= 1; Otherwise PsyElig=0.	9% of 363 (31) Women with problems should have gotten advice.	363			NA	0	1	NA	NA
PsyAdvch	tcc48a	Did someone give you counseling or information about people or programs that could help with your problems?	1=Yes 0=No	1=Yes 0=No	Provider Performance				NA	0	1	NA	NA
PsyFollH	tcc48 and tcc48a	Did someone follow-up to see if you had gotten help with your problems?	1=Yes 0=No	1=Yes 0=No	Provider Performance				NA	0	1	NA	NA
<b>Patient Follow-through</b>													
PsyCmplH	tcc44b	Did you try to contact any of the people or programs you were told about?	1=Yes 0=No	1=Yes 0=No	Patient Compliance	N	Mean	Std Dev	Median	Min	Max	NA	NA

**Appendix C, Table C5. Parenting problems, items and responses.**

Parenting Problems			Response	Recode	Notes	N	Mean	Std Dev	Median	Observed		NA	NA
										Min	Max		
PsyProbP	tcc50	During your pregnancy have you had any concerns with becoming a parent or with the parenting of children you already have?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing		363	20%	40%	NA	0	1	NA	NA
<b>General Importance of Advice</b>													
Construct	Source												
Variable	Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
PrntAt	tcc51	How important do you think it is for pregnant women to be given advice at a prenatal care visit about how to get help with parenting problems?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.3	0.6	3	0	4	0%	35%
<b>Provider Initiation of Service</b>													
PsyInitP	tcc52	At any prenatal care visit, did a doctor, nurse or other provider ask you whether you had any parenting problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing	Provider Performance	363	45%	50%	NA	0	1	NA	NA
<b>Provider Intervention</b>													
PsyEligP	tcc50, tcc52	Women who had a problem and were asked about a problem were asked questions tcc52a and 49 [skip pattern]	tcc50=1 and tcc52=1	PsyElig=1 if PsyProb=1 and PsyInit= 1; Otherwise PsyElig=0.	9% of 363 (31) Women with problems should have gotten advice.	363	9%	NA	NA	0	1	NA	NA
PsyAdvCP	tcc52a	Did someone give you counseling or information about people or programs that could help with your problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing	87% (27) did get advice	31	87%	NA	NA	0	1	NA	NA
PsyFollP	tcc53	Did someone follow-up to see if you had gotten help with your problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing	61% (19) were asked again about their problem	31	61%	NA	NA	0	1	NA	NA
<b>Patient Follow-through if given Advice . . .</b>													
PsyCmplP	tcc52a= 1, tcc52b	Did you try to contact any of the people or programs you were told about?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing	67% (18) women who got advice tried to get help	27	67%	NA	NA	0	1	NA	NA

**Appendix C, Table C6. Abuse problems, items and responses.**

Abuse Problems			Response	Recode	Notes	N	Mean	Std Dev	Median	Observed		NA	NA
										Min	Max		
PsyProbA	tcc50	During your pregnancy have you had any concerns with someone hurting you (emotionally, physically or sexually)?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing		363	14%	35%	NA	0	1	NA	NA
<b>General Importance of Advice</b>													
Construct	Source												
Variable	Variable	Question	Response	Recode	Notes	N	Mean	Std Dev	Median	Min	Max	Floor	Ceiling
HurtAt	tcc59	How important do you think it is for pregnant women to be given advice at a prenatal care visit about someone hurting them?	Important: 1=Extremely 2=Very 3=Somewhat 4=Not very 5=Not at all	Important: 4=Extremely 3=Very 2=Somewhat 1=Not very 0=Not at all	Rating of the General Importance of the Advice	363	3.4	0.5	3	2	4	0%	47%
<b>Provider Initiation of Service</b>													
PsyInitA	tcc60	At any prenatal care visit, did a doctor, nurse or other provider ask you whether you have any concerns with someone hurting you?	Response 1=Yes 2=No 8=Don'tKnow 9=Refused	Recode 1=Yes 0=No Otherwise missing	Notes Provider Performance	N 363	Mean 47%	Std Dev 50%	Median NA	Min 0	Max 1	Floor NA	Ceiling NA
<b>Provider Intervention</b>													
PsyEligA	tcc58, tcc60	Women who had a problem and were asked about a problem were asked questions tcc52a and 49 [skip pattern]	Response tcc50=1 and tcc52=1	Recode PsyElig=1 if PsyProb=1 and PsyInit= 1; Otherwise PsyElig=0.	Notes 10% of 363 (36) Women with problems should have gotten advice.	N 363	Mean 10%	Std Dev NA	Median NA	Min 0	Max 1	Floor NA	Ceiling NA
PsyAdvca	tcc60a	Did someone give you counseling or information about people or programs that could help with your problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing	81% (29) did get advice	36	81%	NA	NA	0	1	NA	NA
PsyFollA	tcc61	Did someone follow-up to see if you had gotten help with your problems?	1=Yes 2=No 8=Don'tKnow 9=Refused	1=Yes 0=No Otherwise missing	74% (25) were asked again about their problem; 2 Didn't Know	34	74%	NA	NA	0	1	NA	NA
<b>Patient Follow-through if given Advice . . .</b>													
PsyCmplA	tcc60a=1, tcc60b	Did you try to contact any of the people or programs you were told about?	Response 1=Yes 2=No 8=Don'tKnow 9=Refused	Recode 1=Yes 0=No Otherwise missing	Notes 55% (16) women who got advice tried to get help	N 29	Mean 55%	Std Dev NA	Median NA	Min 0	Max 1	NA	NA

## **Appendix D**

### **Performance of Health Promotion and Psychosocial Services: Reported by Ethnic Group**

## **Appendix D**

### **Performance of Health Promotion and Psychosocial Services in Different Ethnic Groups**

**Purpose:** To determine whether provider performance of prenatal health promotion and psychosocial services differs for African-American, Foreign-born Latinas, US-born Latinas and White women in Medicaid health plans.

**Summary of Findings:** Women of different ethnic groups reported they were provided health promotion and psychosocial services to different extents.

- **Health Promotion:** Women reported that their providers varied in providing advice in three of the five areas of health promotion studied (taking vitamins, eating proper foods, and weight gain), but not in the other two areas (exercise or secondhand smoke).
  - The odds that White women reported they received advice in any of the five areas were lower, but significantly so only for eating proper foods.
  - The odds that foreign-born Latinas reported they received vitamin advice were lower than African-American women, but no other differences were significantly lower. In fact, odds were higher that foreign-born Latinas reported they received weight gain advice compared to others.
  - More African-American women received vitamin advice than Whites and foreign-born Latinas, and less weight gain advice than foreign-born Latinas.
- **Psychosocial Services.** Women reported that their providers varied significantly in the number of areas of psychosocial needs assessment that they performed. Prior to adjustment for differences in other characteristics that helped to explain providers performance, the only significant difference in the mean overall performance was that US-Born Latinas reported being asked about problems in fewer areas than Foreign-born Latinas (depression, food, money, housing, parenting, abuse)
  - Foreign-born Latinas tended to report being asked if they had problems in more of the topical areas of psychosocial needs assessment studied than other groups.
  - The odds that US-born Latinas reported being asked about depression, food and housing were significantly lower than those of foreign-born Latinas.
  - African-Americans were significantly less likely to report they were asked about food or abuse than foreign-born Latinas.
  - Whites were significantly less likely to report that they were asked about depression than foreign-born Latinas.

### **Provider Performance of Health Promotion Advice in Different Ethnic Groups**

Women of different ethnic groups reported that their providers varied in three of the areas of health promotional advice they received (taking vitamins, eating proper foods, and weight gain), but not in the areas of exercise or secondhand smoke. Prior to adjustment for differences in other characteristics that help to explain whether women were given health promotion advice, there were significant differences in the odds that women were given advice on eating proper foods, and weight gain (Table D1). After adjustment for age, parity, health status and prenatal care visits as appropriate to achieve the best-fitting model for each area (See Methods for best fitting models, and Table D1), there were significant differences in odds of receiving advice in taking vitamins as well as eating proper foods, and weight gain (Table D2). The differences in whether or not they received advice could be isolated one ethnic group at a time. Fewer White women reported that they received advice in any of the five areas, but the differences were statistically significant only for eating proper foods (adjusted OR 0.17; CI 0.06, 0.47). Fewer foreign-born Latinas reported receiving vitamin advice than African-American women (part of reference group with Whites), but no other differences were significantly lower. In fact, more foreign-born Latinas reported they received weight gain advice than others (reference group OR 1.00, significantly more than African-Americans OR 0.35; CI 0.16, 0.77 and US-born Latinas OR 0.32; CI 0.13, 0.78,  $P < 0.01$ ). More African-American women (OR 3.1; CI 1.3, 7.8) received vitamin advice than Whites and foreign-born Latinas (combined reference group OR 1.00), and less weight gain advice than foreign-born Latinas (OR 0.35; CI 0.16, 0.77).

The single most important variable in explaining provider performance of health promotional advice was the health status of the women. For all five types of advice, women with a good, fair or poor health status, as opposed to excellent or very good health status, had different adjusted odds of receiving advice (Table D2). The adjusted odds of receiving advice were lower with lower health status (range of adjusted OR from 0.40 to 0.49) except for receiving advice on taking vitamins. The odds they reported they received advice on taking vitamins was significantly higher in women who had lower health status (OR 2.9; CI 1.3, 6.4). We also found that there were significantly lower odds that women reported they had received the health promotional advice if they had had only 2 or 3 prenatal care visits (range of adjusted OR 0.26 to 0.51) except again for advice on taking vitamins and exercise activity.

Summarized by health promotional area the best fit models revealed the following significant effects (Table D2):

**Performance of Vitamins Advice.** There was no difference in the adjusted relative odds that White women and Latinas born outside the United States reported receiving the advice on taking vitamins and therefore the two groups were combined in the optimal model for explaining differences in receiving the advice. African-American women and US-born Latinas, however, had significantly higher relative odds of obtaining advice about taking vitamins than this combined group. Odds were more than 3.1 times as high for African-American women (OR 3.1; CI 1.3, 7.8;  $P < 0.01$ ), and 2.7 times as high US-born Latinas (OR 2.7; CI 0.91, 7.8;  $P = 0.07$ ) than for the reference group of White women and foreign-born Latinas.

When the independent contributions of the demographic variables to the reported performance of advice about vitamins, the variables of health status, age and prenatal care visits also helped to explain women's ratings. Of these variables, the contribution



made by health status was the only one that met criterion for statistical significance ( $P < 0.10$ ). The adjusted odds were nearly three times as high for women with low health status relative to women with excellent or very good health status (OR 2.9; CI 1.3, 6.4;  $P < 0.01$ ).

**Performance of Eating Advice.** There was little difference in how many women reported receiving advice on eating nutritious foods from many food groups in frequent ‘meals’ without long hours without food in between, except that White women had lower relative odds of receiving advice than the women in other racial ethnic groups. There was no difference in the adjusted relative odds that African-American women and Latinas, whether born outside the US or not, reported receiving the recommended advice on eating. Therefore the three groups were combined in the optimal model for explaining differences in receiving the advice. White women were then found to have only 17% the odds of receiving eating advice that the other women had as a group (OR 0.17; CI 0.06, 0.47;  $P < 0.001$ ).

When the independent contributions of the demographic variables to the importance of giving advice about eating during pregnancy, the variables of health status, parity and the number of prenatal care visits also helped to explain women’s ratings. Women with only 2 or 3 visits had 26% the odds of receiving the advice that women with more visits had (OR 0.26; CI 0.10, 0.73;  $P = 0.01$ ). Women having their first child had 26% the odds of receiving advice about eating than women with one or more child (OR 0.26; CI 0.05, 1.2;  $P = 0.09$ ). The adjusted odds were nearly 40% as high for women with low health status relative to women with excellent or very good health status (OR 0.40; CI 0.14, 1.2;  $P = 0.10$ ).

**Performance of Weight Gain Advice.** Every ethnic group had lower odds of receiving advice on weight gain than did Foreign-born Latinas. Adjusted relative odds for African-American women were 35% those of Foreign-born Latinas (OR 0.35, CI 0.16, 0.77;  $P < 0.01$ ), for US-born Latinas they were 32% (OR 0.32, CI 0.13, 0.78;  $P < 0.01$ ), and for Whites they were 43% (OR 0.43, CI 0.18, 1.07;  $P = 0.07$ ). The variables of health status, age, and the number of prenatal care visits also helped to explain women’s ratings. The adjusted relative odds for low health status was 49% that of excellent or very good health status (OR 0.49, CI 0.28, 0.86;  $P = 0.01$ ). Women with only 2 or 3 visits had 51% the odds of receiving the advice that women with more visits had (OR 0.51, CI 0.28, 0.94;  $P = 0.03$ ). Women 30 years or older had 60% the odds of receiving the advice that younger women had (OR 0.60, CI 0.33, 1.1;  $P = 0.09$ ). The odds ratio for the other demographic variables did not reach the criterion for statistical significance ( $P < 0.10$ ), though they improved the fit of the model that explained reporting of provider performance of weight gain advice.

**Performance of Physical Activity Advice.** There were no significant differences in the reported giving of advice about physical activity among the four ethnic groups. Independent contributions of health status, age and parity helped to explain women’s ratings. Women with low health status had 41% the odds of other women of receiving the advice (OR 0.41, CI 0.25, 0.68;  $P < 0.001$ ). Women under 20 years of age had 49% the odds of receiving the advice that older women had (OR 0.49, CI 0.23, 1.0;  $P = 0.06$ ). Women having their first child had 60% the odds of receiving advice about physical activity than women with one or more child (OR 0.60, CI 0.32, 1.1;  $P = 0.10$ ).

**Performance of Secondhand Smoke Advice.** There were no significant differences in the reported giving of advice about secondhand smoke among the four ethnic groups. Independent contributions of health status, age and visits, however, helped to explain

women's ratings. Women with low health status had 42% the odds of other women of receiving the advice (OR 0.42, CI 0.24, 0.75; P=0.004). Women with only 2 or 3 visits had 36% the odds of reporting they received the advice that women with more than 5 visits had (OR 0.36, CI 0.18, 0.72; P=0.0004). The odds ratio for the other demographic variables did not reach the criterion for statistical significance (P=<0.10), though they improved the fit of the model that explained reporting of provider performance of weight gain advice. For example, women with only 4 or 5 visits had 65% the odds of reporting they received the advice that women with more than 5 visits had (OR 0.65, CI 0.32, 1.3; P=0.21).

## **Psychosocial Needs Assessment in Different Ethnic Groups**

### **Performance of Psychosocial Needs Assessment in Different Ethnic Groups**

Women of different ethnic groups reported that their providers varied significantly in the number of areas of psychosocial needs assessment that they performed. Prior to adjustment for differences in other characteristics that helped to explain providers performance, the only significant difference in the mean overall performance was that US-Born Latinas reported being asked about problems in fewer areas than Foreign-born Latinas (Tables D3). Whereas Foreign-born Latinas reported a mean score of 47.2 out of 100 possible points for the six areas, or 2.9 problem areas on average US-born Latinas reported a mean score of 36.1 or 2.2 problem areas (Tables 4.2). After adjustment for parity, health status and prenatal care visits as appropriate to achieve the best-fitting model, significant differences were observed for African-American women as well (Table D4). The mean effect was -13.7 points less (or 0.86 problems) for US-born Latinas (P<0.02), and -9.7 points less (0.58 problems) for African-Americans (P  $\square$  0.05).

Performance of psychosocial needs assessments was analyzed separately for each area of need (Tables D5) and adjusted for potentially confounding characteristics (Table D6). Since women reported only yes or no to whether they were asked about problems the results are given in odds ratios: which group of women was more or less likely than a reference group of women to have been asked about whether they had problems. The odds that US-born Latinas reported being asked about depression (OR 0.45; CI 0.23, 0.88, P<0.02), food (OR 0.46; CI 0.23, 0.91, P<0.05) and housing (OR 0.36; CI 0.16, 0.77, P<0.01) were significantly lower than those of foreign-born Latinas after adjustment for other characteristics. African-Americans were significantly less likely to report they were asked about food (OR 0.42; CI 0.24, 0.74; P<0.01) or abuse (OR 0.56; CI 0.32, 0.97; P<0.05) than foreign-born Latinas, and the odds they were asked about money and housing were also lower though at higher levels of significance (P=0.06, P=0.08). Whites were only significantly less likely to report that they were asked about depression than foreign-born Latinas (OR 0.45; CI 0.23, 0.87, P<0.02).

**Performance of a Depression Needs Assessment.** Foreign-born Latinas reported that they were asked about depression most. Adjusted relative odds that US-born Latinas reported being asked about depression were 44% (OR 0.44; CI 0.23, 0.88; P $\square$ 0.02) that of foreign-born Latinas (Table D6). Relative odds that White women reported being asked about depression were similarly low, 46% (OR 0.46; CI 0.24,0.89; P $\square$ 0.02) that of foreign-born Latinas. The only characteristic with a significant independent effect from the ethnic groups on depression was health status. Women who had lower health status (only Good, Fair or Poor) were 55% as likely to report that they had been asked about

depression (0.55; CI 0.34, 0.85) than women with higher health status (Excellent or Good) ( $P \leq 0.01$ ).

**Performance of a Money Needs Assessment.** Foreign-born Latinas tended to report that they were asked about money problems most, though there was essentially no difference with White women. Adjusted relative odds that African Americans reported being asked about money problems were 54% (OR 0.54; CI 0.29, 1.02;  $P=0.06$ ) that of foreign-born Latinas (Table D6). Mean relative odds that US-born Latinas reported being asked about depression were 69% (OR 0.69) that of foreign-born Latinas, but the difference was not statistically significant (CI 0.33, 1.45;  $P>0.10$ ). The only characteristic with a significant independent effect from the ethnic groups on money problems was health status. Women who had lower health status (only Good, Fair or Poor) were 60% as likely to report that they had been asked about money problems (0.60; CI 0.36, 1.00;  $P \leq 0.05$ ).

**Performance of a Food Needs Assessment.** Foreign-born Latinas tended to report that they were asked about problems with having enough food most, though again there was little difference with White women. Adjusted relative odds that African Americans reported being asked about food problems were 42% (OR 0.42; CI 0.24, 0.74;  $P<0.01$ ) that of foreign-born Latinas and that US-born Latinas reported they were asked were 46% (OR 0.46; CI 0.23, 0.91;  $P \leq 0.05$ ) that of foreign-born Latinas (Table M.9). Age, parity and prenatal care visits all had significant independent effects from the ethnic groups on being asked about food problems. Women who were older (30 years old or more), had at least one child, or only had 2 or 3 prenatal care visits were all significantly less likely to have been asked whether they had problems getting enough food.

**Performance of a Housing Needs Assessment.** Foreign-born Latinas reported that they were asked about problems with housing most. Adjusted relative odds that African Americans reported being asked about housing problems were 59% (OR 0.59; CI 0.33, 1.06;  $P=0.08$ ) that of foreign-born Latinas and that US-born Latinas reported they were asked were even lower 36% (OR 0.36; CI 0.16, 0.77;  $P \leq 0.01$ ) that of foreign-born Latinas (Table M.9). Mean relative odds that Whites reported being asked about housing were 67% (OR 0.67) that of foreign-born Latinas, but the difference was not statistically significant (CI 0.34, 1.33;  $P>0.10$ ). Age, parity, health status and prenatal care visits all had significant independent effects from the ethnic groups. Women who were older, had at least one child, had lower health status, or only had fewer than 6 prenatal care visits were all significantly less likely to have been asked whether they had problems with housing.

**Performance of a Parenting Needs Assessment.** There were no significant differences among the ethnic groups in reporting that they were asked about parenting problems. Adjusted relative odds that US-born Latinas reported being asked were 77% (OR 0.77) that of all other ethnic groups combined, but the difference was not statistically significant (CI 0.43, 1.36;  $P>0.10$ ; Table M.9). Age, parity, health status and prenatal care visits all had significant independent effects even when the ethnic groups were included in the adjustment. Women who were older, had at least one child, had lower health status, or only had fewer than 6 prenatal care visits were all significantly less likely to have been asked whether they had problems with parenting.

**Performance of an Abuse Protection Needs Assessment.** Foreign-born Latinas reported that they were asked about problems with concerns about someone hurting them. Adjusted relative odds that African Americans reported being asked about such concerns

about abuse were 57% (OR 0.57; 0.34,0.98;  $P \leq 0.05$ ) that of foreign-born Latinas and that US-born Latinas reported they were asked were a similar 53% (OR 0.53; 0.28,1.01;  $P \leq 0.05$ ) that of foreign-born Latinas (Table D6). Mean relative odds that Whites reported being asked about abuse were 71% (OR 0.71) that of foreign-born Latinas, but the difference was not statistically significant (CI 0.38,1.32;  $P > 0.10$ ). Only prenatal care visits had a significant independent effect from the ethnic groups. Women who had only 2 to 3 prenatal care visits were only 60% as likely to have been asked whether they had problems with someone hurting them than women with more visits ( $P = 0.06$ ).