

**An Evaluation of El Niño Sano Program:
A Strategy for Promoting Health of
Migrant Seasonal Farmworker Children**

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TABLE OF CONTENTS

Chapters

I.	INTRODUCTION.....	7
	The Problem.....	8
	♦ Health status of Migrant Seasonal Farmworker Children	8
	♦ Prevalence of Well-Child Care in Migrant Seasonal Farmworker Children.....	9
	Determinants of the Utilization of Health Care Services	12
	♦ Health Care Delivery System.....	13
	♦ Predisposing Factors	14
	♦ Enabling Factors.....	15
	♦ Perceived Illness Level.....	16
	El Niño Sano Program	17
	Effectiveness of Indigenous Community Health Promoters	20
	Conceptual Framework	24
	Purpose of Study.....	25
	Research Questions.....	25
II.	METHODS	28
	Design.....	28
	Sampling Procedures	29
	Definitions of Variables	31
	Methods of Data Collection.....	32
	♦ Medical files	32
	♦ Computer Files	34
	♦ Health Questionnaire.....	34
	Summary of Methodology	35
III.	ANALYSIS AND RESULTS	36
	Characteristics of the Samples.....	37

Results to the Research Questions	
♦ Question #1	37
♦ Question #2	39
♦ Question #3	40
♦ Question #4	43
♦ Question #5	45
♦ Question #6	45
Summary of Results.....	47
IV. DISCUSSION.....	49
Family Characteristics	50
Health Care Delivery System.....	51
Knowledge of Childhood Preventive Health Care Practices	53
V. SUMMARY AND CONCLUSIONS	55
♦ Design.....	55
♦ Conceptual Framework	56
♦ Research Questions.....	56
Limitations	57
Recommendations.....	60
Implications for Practice	62
VI. REFERENCES	63
VII. APPENDICES	
Appendix A: Health Questionnaire.....	68
Appendix B: Work Sheet for Measuring a Change in Parental Knowledge	71
VIII. ABSTRACT.....	72

LIST OF TABLES

Table

1	Frequency of Scheduled Pediatric Health Visits at La Clínica del Cariño ...	11
2	Compliance with Scheduled Pediatric Health Visits at La Clínica del Cariño.....	11
3	Characteristics of the Sample.....	38
4	Distribution of Well-Child Care Visits among the Different Locations for Both Sample 1B and Sample 2.....	41
5	Relationship of Well-Child Care Visits to the Location of the Visit	41
6	Relationship of Health Insurance to Well-Child Care Visits.....	42
7	Relationship of Health Insurance to Well-Child Care Visits Revised.....	43
8	Parental Knowledge of Childhood Preventive Health Care Practices	44
9	Encounters with El Niño Sano Program.....	46
10	Pearson's r Correlations of Encounters with El Niño Sano Program.....	47

LIST OF FIGURES

Figures

1	Standards for Well-Child Care Visits at La Clínica del Cariño	10
2	Components of El Niño Sano Program.....	19
3	A Conceptual Framework of the Goal of El Niño Sano Program	26
4	Sample Utilized in the Study	30
5	Definitions and Relationships of Variables.....	33

CHAPTER I

INTRODUCTION

There are approximately 2.7 million migrant and seasonal farmworkers (MSFWs) and their dependents in the nation (Johnston, 1985). Many of these MSFWs experience greater health problems than the general population does due to environmental factors associated with farm work and the socioeconomic characteristics of the population. Many of these health problems are preventable and treatable with adequate health supervision. However, many MSFWs encounter barriers in the utilization of health care services and lack the resources to maintain a healthy lifestyle (Littlefield & Stout, 1987; Slessinger & Cautley, 1981; Wilk, 1986).

The children are of particular interest since they are the nation's future population. It is believed that a healthy child who adopts healthy lifestyles will not be a detriment to society. Well-child care, which consists of immunizations, periodic screening, health education, and anticipatory guidance, promotes the prevention and early management of costly pediatric health problems and their complications. Health care professionals are presented with a unique challenge in promoting well-child care to the children of MSFWs who lack the resources to obtain health care services and to live a healthy life.

A group of health care professionals developed a program in Hood River called El Niño Sano, the healthy child, to promote preventive health care practices for the local children of MSFWs. The El Niño Sano program utilized indigenous community health promoters to provide community-based, culturally-sensitive, health education, referral, and case finding. Additionally, the program provided preventive, early-intervention, and follow-up health care services to MSFW

children through mobile clinics in the field. An evaluation of the effectiveness of this program was the purpose of this research study.

This evaluative research study explored the effect of the El Niño Sano program on the frequency of well-child care visits among the MSFW children and on parental knowledge of childhood preventive health care practices. The data utilized in this study were obtained from health questionnaires collected by the promoters during home visits with the MSFW families and through a review of pediatric medical files. The data were utilized to explore the relationships between the components of the program, the characteristics of the MSFW family, and the incidence of well-child care visits in MSFW children.

THE PROBLEM

In the agricultural based community of Hood River, Oregon, there are an estimated 20,000 Mexican MSFWs at peak season. Many of these MSFWs do not receive adequate health supervision despite the presence of a local migrant health center, La Clínica del Cariño. Data on the health problems and utilization of health services within the local MSFW population indicate a high prevalence of preventable and treatable health conditions among MSFW children due, in part, to the inadequate utilization of well-child care (La Clínica del Cariño, 1988). These findings are similar to those in studies of MSFWs and their children throughout the nation (Johnston, 1985; Slesinger, Christenson, & Cautley, 1986; Wilks, 1986).

Health Status of MSFW Children

Specific studies on the general health status of MSFW children have documented a high incidence of treatable and preventable health conditions such as intestinal parasites (American Friends Service Committee, 1970; Hood River County Health Department, 1985; Ungar, Iscoe, Cutler, & Bartlett, 1986); dental

caries and periodontal disease (Kaufman, Lewis, Hardy, & Proulx, 1973; Koday, Rosenstein, & Lopez, 1990; Michael & Salend, 1985; Slesinger & Cautley, 1981; Woolfolk, Hamard, & Bagramian, 1984); anemia (Chase, Kumar, Dodds, Sauberlich, Hunter, Burton, & Spalding, 1971; Kaufman, et al., 1973; O'Brien, 1983; Schneider, 1986); and tuberculosis (Jacobson, Mercer, Miller, & Simpson, 1987; O'Brien, 1983; Schneider, 1986). Additionally, there is a high prevalence of low growth parameters and vitamin A deficiencies in MSFW children (Chase, et al., 1971; Kaufman, et al., 1973). Research has also indicated that many MSFW children lack adequate immunizations (Chase, et al, 1971; Lee, McDermott, & Elliott, 1990; Michael & Salend, 1985; Schneider, 1986; Slesinger, Christenson, & Cautley, 1986). Thus, it appears that MSFW children do not receive adequate well-child care for the identification, prevention, and early treatment of childhood illnesses.

Prevalence of Well-Child Care Among MSFW Children

Well-child care is the provision of pediatric preventive health care services which include a physical examination, developmental screening, immunizations, health education, and parental guidance. The American Academy of Pediatrics (1988) recommends that all children between birth and age eighteen have periodic well-child examinations. La Clínica del Cariño encourages their pediatric population to follow the well-child care standards developed to fit their population. These standards, which may be found in Figure 1, are similar to those of the American Academy of Pediatrics.

FIGURE 1**Standards for Well-Child Care Visits at La Clínica del Cariño**

2 weeks	12 months
2 months	15 months
4 months	18 months
6 months	24 months
9 months	every year till age 18

The literature on the utilization of well-child care among MSFW children is limited. One study by Slesinger, Christenson, and Cautley (1986) explored the utilization of preventive health care services among MSFW children in Wisconsin. They found, through interviews with the mothers of 330 children under the age of sixteen, that only 44% of the children had received an annual physical examination and only 35% had received an annual dental checkup. Additionally, they found that the children under three years of age lacked adequate immunizations. Other studies of the MSFW population, revealed that MSFWs tended to utilize health care services to meet acute health care needs rather than for the prevention of health problems (Littlefield & Strout, 1987; Slesinger & Cautley, 1981; Wilks, 1986).

In 1988, Dr. Tina Castanares conducted a random survey of 100 pediatric (birth to 18 years) medical records at the local clinic, La Clínica del Cariño. She found that many Hood River MSFW children did not receive adequate preventive well-child care. The frequency of scheduled acute care and well-child care visits that occurred in the pediatric MSFW clients as shown in Table 1 indicates that many children utilize health care services for acute care. A more detailed investigation into 25 of the 100 pediatric medical records produced similar results and found that many MSFW children did not show for their scheduled well-child care visits compared to the scheduled acute care visits (see Table 2). Also, 80%

(20) of the 25 children surveyed had never had any well-child care visits, and only 6% of the children received the desired well-child care based upon standard well-child care schedules of La Clínica del Cariño.

TABLE 1

Frequency of Scheduled Pediatric Health Visits at LCDC

Total sample of 100 pediatric clients

	# of visits	% of total visits
Acute care visits	324	92.3%
Well-child care visits	27	7.7%
Actual total visits	351	100%

TABLE 2

Compliance with Scheduled Pediatric Health Visits at LCDC

A sub-sample of 25 pediatric clients ranging from 2-10 years of age with a mean of 5.5 years

	# of visits	% of total visits
Acute care visits	106	82.8%
actual	100	78.1%
"no shows"	6	4.7%
Well-child care visits	22	17.2%
actual	5	3.9%
"no shows"	17	13.3%
Total visits		
actual	105	82%
"no shows"	23	18%

The poor utilization of well-child care found in MSFW children at the clinic from this 1988 survey prompted investigation by Dr. Castanares into another sample of 22 children who were less than 18 months of age and had been delivered by the clinic's physicians. The hypothesis was that these children represented a population of children who had a greater likelihood of compliance due to the family relationship with the provider during pre- and post-natal care. Yet, in surveying these 22 medical records, only 38% of the 132 well-child care visits that should have completed were accomplished. Although the family's familiarity with the health professionals did result in a 22% increase (from 6% to 38%) in the number of children receiving the recommended number of well-child visits, many children continued to lack adequate well-child care. A possible explanation to the inadequate utilization of well-child care among the local MSFW children will be explored through a review of the literature on the determinants of the utilization of health care services.

DETERMINANTS OF THE UTILIZATION OF HEALTH CARE SERVICES

There are many environmental and social factors that affect the utilization of health care services. These determinants are conceptualized through a theoretical framework presented by Anderson and Newman (1973). Through this framework the determinants of health care utilization are identified as:

1. The volume, distribution, access, and structure of the health services delivery system.
2. Predisposing factors such as demographics, social structure, and beliefs.
3. Enabling factors such as income, health insurance, and access to a regular source of health care.
4. The level of illness both perceived by the individual and evaluated by the health care professional.

These determinants of health care utilization have also been found in many other research studies on the Hispanic population (Anderson, Giachello, & Aday, 1986; Anderson, Lewis, Giachello, Aday, & Chiu, 1981; Estrada, Trevino, & Ray, 1990; Ginzberg, 1991; Guendelman & Schwalbe, 1986; Markides, Levin, & Ray, 1985).

The MSFWs and their children are at a greater risk for developing preventable and treatable health problems due to many of these factors. These children typically live in poverty in many different rural communities that lack adequate health care services. Typically, they represent a population of uneducated ethnic minorities, primarily Hispanic, who experience many cultural and language barriers in every day life. An examination of these environmental and social factors presented below indicates that the MSFW children are at a distinct disadvantage due to poor access to health care services.

Health Care Delivery System

The agricultural migratory life style of MSFWs brings them to many different rural communities. Some MSFWs return to the same communities yearly; others move on to new and unfamiliar communities to seek work. Those MSFWs that are new members to a community are frequently unaware of the available health care services and therefore fail to obtain preventive health care services (Flores, 1988). Also, many MSFWs cannot afford to lose a day's pay to visit clinics that offer primarily day time clinic appointments (O'Brien, 1983; Slesinger, 1979; Wilks, 1986). Additionally, many of these rural communities lack adequate transportation to distant health care facilities creating another barrier to health services utilization (Flores, 1988; O'Brien, 1983; Slesinger, 1979; Wilks, 1986). Finally, the frequent mobility of MSFWs often leads to a delay in treatment creating a fragmentation of

health care services which does not promote continuity of care (Littlefield & Stout, 1987; Wilks, 1986). Therefore, the lifestyle of the MSFW and the characteristics of the rural communities and their health care delivery system are determinants of the utilization of health care services.

Predisposing Factors

The factors that keep MSFWs from seeking health care services include the structure of the MSFW family, their social structure, and their beliefs and values towards health, illness, and health care services. A review of the literature explains some of the characteristics of the family and the social system within the Mexican culture that predispose this ethnic minority to avoid seeking health care services.

Martaus (1986) found through interviews with Mexican-American MSFWs that the advice of family members and others within their social system was utilized to guide them in the treatment of illness. The treatments utilized by the Mexican-Americans focused upon the relief of the symptoms associated with illness. They consisted of home remedies, over-the-counter medications, and supplication and prayers to God. Only when these methods failed and the illness was creating physical limitations in work and daily life, did the Mexican-American MSFWs seek out medical attention.

Another descriptive study by Marsh and Hentges (1988) identified the characteristics of Mexican-American families who utilized folk remedies and those families who utilized conventional medical care. These findings were similar to those in Martaus's study. Additionally, they found that undereducated, rural, large families tended to utilize folk medicine rather than conventional health services.

Other descriptive studies found that the family and community played an important role in the utilization of health care services and health promoting

behaviors. Hoppe and Heller (1975) found that familism in Mexican-Americans decreases feelings of alienation which resulted in an increase in health care utilization. Kerr and Ritchey (1990) found through self-reports of health promoting behaviors that interpersonal support of MSFWs from the family and community was important in promoting a healthy lifestyle.

The literature presented indicates that the role of the family and the cultural context in which the family functions affects the utilization of health care services. However, the Mexican family may not always adhere to the predominant cultural patterns described in the literature presented. Additional research findings have indicate that the level of acculturation in the family is an important predisposing factor to health care utilization (Chesney, Chavira, Hall, & Gary, 1982; Estrada, Trevino, & Ray, 1990; Markides, Levin, & Ray, 1985; Slesinger & Cautley, 1981; Wells, Golding, Hough, Burnam, & Karno, 1989). Therefore, strategies for promoting preventive health care practices in the MSFW should be centered on the family and its current values and beliefs of health, illness, and health care services.

Enabling Factors

MSFW families are typically employed in agriculture on a seasonal basis. They lack a steady source of income and access to health insurance, creating a great financial barrier to health care. The entire family, including children, must work and frequently migrates to secure enough income to meet basic needs such as food, shelter, and clothing (Johnston, 1985; Schneider, 1986; Wilks, 1986). The children of MSFWs are not unlike many other poverty-stricken children throughout the United States. The impoverished life of many children leads to an increase in health care problems (Kovar, 1981) and presents a financial barrier to the utilization of health care services (Dutton, 1981).

A review of the research on the economic status of Hispanic children in relation to the utilization of health care services indicates that income and health insurance or Medicaid coverage are important determinants in the utilization of health care services (Anderson et al. 1981; Estrada, Trevino, & Ray, 1990; Guendelman & Schwalbe, 1986; Trevino, Moyer, Valdez, & Stroup-Benham, 1991). The agricultural work of many destitute MSFWs usually does not provide health insurance as an occupational benefit. Their monthly wages during peak season often make them ineligible for income subsidies such as Medicaid (Schnieder, 1986). Additionally, many MSFWs are unable to receive Medicaid benefits due to their illegal immigrant status (Guttmacher, 1984, Schneider, 1986). Although many migrant clinics receive federal migrant health funds, many MSFWs must pay a small fee for health care services due to the continual cutbacks in funding. The minimal cost for health care services is sometimes too great for the destitute MSFWs, thus deterring them from seeking preventive care services. Therefore, the economic status of the MSFWs is an important enabling variable in the utilization of health care services.

Perceived Illness Level

The individual's and family's perceptions of health status in relationship to the utilization of health care services is unclear. Anderson et al. (1981) found that Hispanics lack of perceived need contributed to the lower utilization of preventive health care services. Yet, Guendelman and Schwalbe (1986) found no difference between the Hispanic population and other lower socioeconomic populations in their utilization of health care services related to their perceived need for medical care.

Research has shown that MSFWs perceive their health status to be poor to fair (Littlefield & Stout, 1987; Slesinger & Cautley, 1981). So why is there such a

poor utilization of preventive health care services? The many other environmental and social variables that were presented appear to have a great influence on the MSFWs utilization of health care services.

The El Niño Sano program (ENS) was designed to reduce some of the environmental and social factors that deter the MSFWs from obtaining preventive health care services. The program utilized health care workers from the same culture as the MSFWs which helped to reduce the cultural and language barriers that the MSFWs encountered. Additionally, the program provided free health education and health care services to the MSFW children in the field and in the home primarily during evening and weekend hours. Thus, the barriers to the utilization of health care services such as transportation, loss time from work, and the cost of health care services were reduced.

Programs such as the ENS program which utilize indigenous health care workers have been successful in promoting preventive health care services and improving the health status of many medically indigent populations. A description of the ENS program and a review of the literature on similar programs will be presented in the next section.

EL NIÑO SANO PROGRAM

An intervention strategy for reducing the incidence of preventable and treatable health conditions in migrant seasonal farmworker (MSFW) children in Hood River was developed in 1988. El Niño Sano Program (ENS), the healthy child, was designed by the concerned medical professionals at the local migrant clinic to bring currently unserved MSFW children into the medical system by providing preventive, early-intervention, well-child, and follow-up services in the field. Most importantly, the program utilized indigenous community health promoters (IChPs) to provide community-based, culturally-sensitive health

education, referral, and case finding with the hope of promoting lasting preventive health care practices.

The seven ICHPs in the ENS program possessed the same social, environmental, and ethnic characteristics of the MSFW population. They were selected by a panel of bilingual, bicultural community leaders because of their positive reputation and leadership in the community, anticipated teaching skills, and motivation to serve their community. After in-depth interviews and home visits with twenty-one male and female applicants, seven literate Hispanic women were selected to serve as part-time paid ICHPs, also known as promotoras.

The promotoras underwent 300 hours of training in anatomy and physiology, growth and development, nutrition, hygiene, dental disease, communicable diseases, childhood safety and accident prevention, community resources, and the use of medications and health care services. The educational materials utilized in the promotora training included the Camp Health Aide Manual developed by the Midwest Migrant information Office (1987) and David Werner's (1973) Donde no Hay Doctor (Where There is No Doctor) which has been successfully utilized in many other ICHP programs. Additionally, the promotora training included the development of teaching skills that utilized posters, puppet shows, skits, songs, and other creative methods that provided health education to the population of MSFWs.

After completion of the training phase, the promotoras in the ENS program went to the migrant camps and the homes of MSFW families to provide health education, growth monitoring, and provided screening for anemia, dental disease, and parasites. The promotoras identified children in need of health care services and referred them to the appropriate resources. Additionally, the promotoras scheduled the MSFW children to a well-child field clinic, assisted in the execution of the field clinics, and followed up on the recommendations and treatments

prescribed by the physicians and dentists. Detailed definitions of the components in the ENS program are presented in Figure 2.

Figure 2
Components of El Niño Sano Program

<p>Main Objective of El Niño Sano Program (ENS) The promotion of preventive health care services for MSFW children in Hood River through home visits, health education programs, and well-child care services provided in the migrant camps and local neighborhoods.</p> <p>Promotora An indigenous community health promoter (ICHP) in the ENS program who provided health education, screening and referral services for growth and developmental delays, anemia, dental disease, and parasites.</p> <p>Home Visits The promotoras in the ENS program made home visits to the MSFW families to provide health education, screening and referral services for growth and developmental delays, anemia, dental disease, and parasites.</p> <p>Health Classes The promotoras in the ENS program provided health education classes on childhood preventive health care practices to a group of MSFWs in the migrant camps or neighborhoods of the MSFWs.</p> <p>Field Clinic A mobile health clinic of the ENS program which provided well-child care in the migrant camps and homes of MSFWs by the ENS doctor with the support of the promotoras.</p>
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In conclusion, the ENS program employed seven ICHPs, known as the promotoras, who provided health promotion activities through home visits and health education classes. Additionally, these promotoras provided clinical support for the field clinics which provided well-child care services by the ENS doctor to MSFW children in the migrant camps and local neighborhoods. It was through these health promotion activities and the provision of field clinics that the ENS

program hoped to improve the attitudes, knowledge, and clinic utilization patterns among MSFW parents with respect to their children's health.

EFFECTIVENESS OF INDIGENOUS COMMUNITY HEALTH PROMOTERS

ICHPs have been utilized throughout the world to promote health care for all by the year 2000. ICHPs have primarily been utilized in the developing nations and in selected medically deprived populations in the United States. A general review of the literature on ICHP programs throughout the world shows that the use of ICHPs is an effective strategy for improving the access to health care services to many indigent populations (Arole, 1978; Behrhorst, 1984; Bender & Pitkin, 1987; Bentley, 1989; Bergman, 1984; Bergman, Gwatkin, & Burger, 1987; O'Hara-Deveraux, Reeves, & Curtis, 1980; Ministry of Health, Columbia, 1982; Solter, Cross, & LeSar, 1980,); increasing the community's knowledge of preventive health care practices (Bentley, 1989); and improving the utilization of preventive health care services (Arole, 1978; Bentley, 1989; Bone, Mamom, Levine, Walrath, Nanda, Gurley, Noji, & Ward, 1989; Gonzalez & Woodward, 1974; Matomora, 1989a, 1989b; Ministry of Health, Costa Rica, 1982; Stewart & Hood, 1970; Watkins, Larson, Harlan, & Young, 1990).

In many instances, the evaluative research on international ICHP programs does not adequately reflect the objectives of the ENS program due to the differences in the scopes of practice of ICHPs among the various nations. Additionally, many of the international evaluative studies on the utilization of ICHPs lack the resources to present large scale valid and reliable outcomes. Specifically, there is a paucity of information systems and outside technical assistance in many of the international ICHP programs to gather reliable data and conduct research (Bergman, Gwatkin, Burger, 1987; WHO, 1989).

One study presented by Bentley (1989) on primary health care in northwest Somalia, measured the differences in maternal health knowledge and preventive practices in villages served by ICHPs and those that did not utilize the ICHP. Bentley found through 872 household interviews that maternal knowledge on the prevention of diarrheal diseases and utilization of oral rehydration therapy and latrines was significantly higher in the ICHP villages despite the lack of significant change in the incidence of diarrheal disease. Additionally, there was a significant increase in maternal knowledge about vaccines and an increase in immunization coverage in the ICHP villages. The primary health care program in northwest Somalia used community based ICHPs to provide health education and basic primary health care services to a nomadic population similar to the MSFWs of Hood River.

The role of the ICHP in northwest Somalia differed from the ICHP in the ENS program in that the former provided curative primary health care services for minor health problems. These ICHPs functioned in a role similar to the role of a nurse practitioner or physician's assistant. In contrast, one of the main goals of ENS program was to provide primary health care by a licensed primary care provider along with health promotion provided by the promotoras in the ENS program.

Another study presented by Arole (1978) on primary health care in India, found a greater utilization of preventive health care services and a decrease in childhood mortality and morbidity in villages that utilized ICHPs. A population of 1490 was surveyed prior to the implementation of the ICHP project; five years later a population of 1491 in the ICHP project area and a population of 1405 in an area that did not receive services from the ICHPs were surveyed. The results indicated that ICHPs were effective in decreasing infant mortality, and increasing antenatal care and family planning practices. In addition, the ICHPs improved the

immunization status of children under five and decreased the incidence of whooping cough, diphtheria, polio, and childhood hospitalizations.

The ICHP has also been utilized in the United States to meet the needs of various rural and cross cultural communities. Additionally, since 1985, five ICHP programs, one being ENS program, were developed to improve the MSFWs' health status and utilization of health care services. A review of the characteristics and outcomes of these programs is presented next.

An assessment of the Alaskan Health Aide by O'Hara-Devereaux, Reeves, and Curtis (1980) showed an improved health status of the population and greater access to health care. The Alaskan Health Aide was a paid member of the health care team who examined and treated patients for minor health problems according to protocols or under the direction of a supervising physician. They received intense training which consisted of classroom instruction and clinical experience to obtain clinical proficiency in providing primary health care services. In most instances, they were the only health care workers in the community, thus providing many needed health care services. No formal research was conducted that measured the Alaskan Health Aides' impact on the health status, yet it is believed that this program was effective in improving health outcomes.

In a Texas county health department, ICHPs were utilized to provide outreach services such as health education, screening for lead poisoning, referral, and reminders to parents of scheduled pediatric appointments. Gonzalez and Woodward (1974) found through pre- and post-surveys of childhood immunization levels that after six months of outreach services the number of children immunized against diphtheria, pertussis, tetanus, polio, measles, and rubella increased from 4.8% to 25.9%. Additionally, they found that 60% of all referrals made to preventive health care services by the ICHPs were achieved, and

there was a lower percentage of broken well-child care appointments in areas served by ICHPs.

Un Comienzo Sano / Health Start program in Arizona utilized ICHPs to increase the adequacy of prenatal care through health education and referral. Meister and Guernsey de Zapien (1990) report an overwhelming community involvement in the program which exhibits the MSFWs' acceptance to ICHP programs. There were no data available on the health outcomes or utilization of health care services of the MSFWs involved in Un Comienzo Sano/Health Start program.

The Camp Health Aid program in southwest Michigan and its downstream pilot project, the Migrant Health Aide program in the Rio Grande Valley, Texas utilized volunteer ICHPs to provide basic first aid, informal health education, follow up on clinic visits, case finding, and referral. The focus was on the promotion of preventive care, self-responsibility, and the empowerment of the MSFWs. The literature (Flores, 1987 & 1988; Jackson-Carroll, 1988; Robinson, 1990) describes these programs' success in reducing the barriers to health care, case finding, referral, and empowering MSFWs to improve their health and well being. No formal research has been conducted on the change in knowledge level, utilization of health care services, or on the health outcomes of the MSFWs served by the ICHPs.

The Lay Health Advisor program in North Carolina trained MSFW women to become volunteer promoters to promote maternal and child health services through health education, case finding, and referral. In an evaluative research study, (Kim Larson, personal communication, July 17, 1991; Watkins, Larson, Harlan, & Young, 1990) compared the medical records of the population that had contact with ICHPs to a similar control population. Measurable outcomes showed a decrease in low birth weight infants and childhood anemia; and an increase in

early prenatal care, child developmental screening and immunizations in the intervention population. Watkins, Larson, and Harlan (1990) also evaluated MSFWs knowledge and attitudes regarding maternal and child health practices through a population level questionnaire. They found no significant change in the pre- and post-tests at both the intervention and control sites.

In conclusion, the review of the literature indicates that use of indigenous community health promoters may be an effective strategy for improving the health of many culturally diverse needy populations. The ICHPs are widely accepted in many communities as a resource for obtaining knowledge and access to health care services. Despite the various roles of the ICHP and the differences in the organizational structure of the health care delivery systems, ICHPs have improved the utilization of preventive health care services.

CONCEPTUAL FRAMEWORK

A conceptual framework adapted from Anderson and Newman's (1973) and supported by the review of literature, indicates that there are many social and family determinants to the utilization of well-child care among MSFW children.

The ENS program is a strategy for reducing some of the barriers to the utilization of well-child care outlined in a conceptual framework presented in Figure 3. The ENS program is a unique health care delivery system that improves the MSFWs access to the health care delivery system. The ENS program aims to provide health care services within the context of the family characteristics. The indigenous community health promoters, the main component of the ENS program, provided bilingual and bicultural health education and health care services to MSFW children. The health teachings that were presented to the MSFWs incorporated traditional health beliefs with conventional medicine. These teachings were presented in Spanish utilizing simple words and graphics that

enabled the uneducated MSFW to comprehend. The ENS program also provided health care services through evening and weekend field clinics and home visits. This strategy provided working families access health care by reducing the need for transportation to health care facilities and time lost from work to obtain health care. Finally, the health care workers of the ENS program introduced many MSFW families to the health resources in the community. This research study will evaluate the effect of this unique health care delivery system on the parental knowledge of preventive health care practices and the utilization of well-child care in MSFW children.

PURPOSE OF STUDY

The high incidence of health care problems and poor utilization of preventive health care services within the MSFW population in Hood River and throughout the nation has prompted health care professionals to seek out creative programs. The review of the literature has indicated that ICHP programs appear to be viable strategies for promoting preventive care. However, more research is needed on the effectiveness of ICHP programs in the MSFW population to allow for the adequate allocation of resources to these programs. Thus, the purpose of this study is to evaluate the ENS program which provides an opportunity to document the effectiveness of ICHPs in the promotion of preventive health care for MSFW children.

RESEARCH QUESTIONS

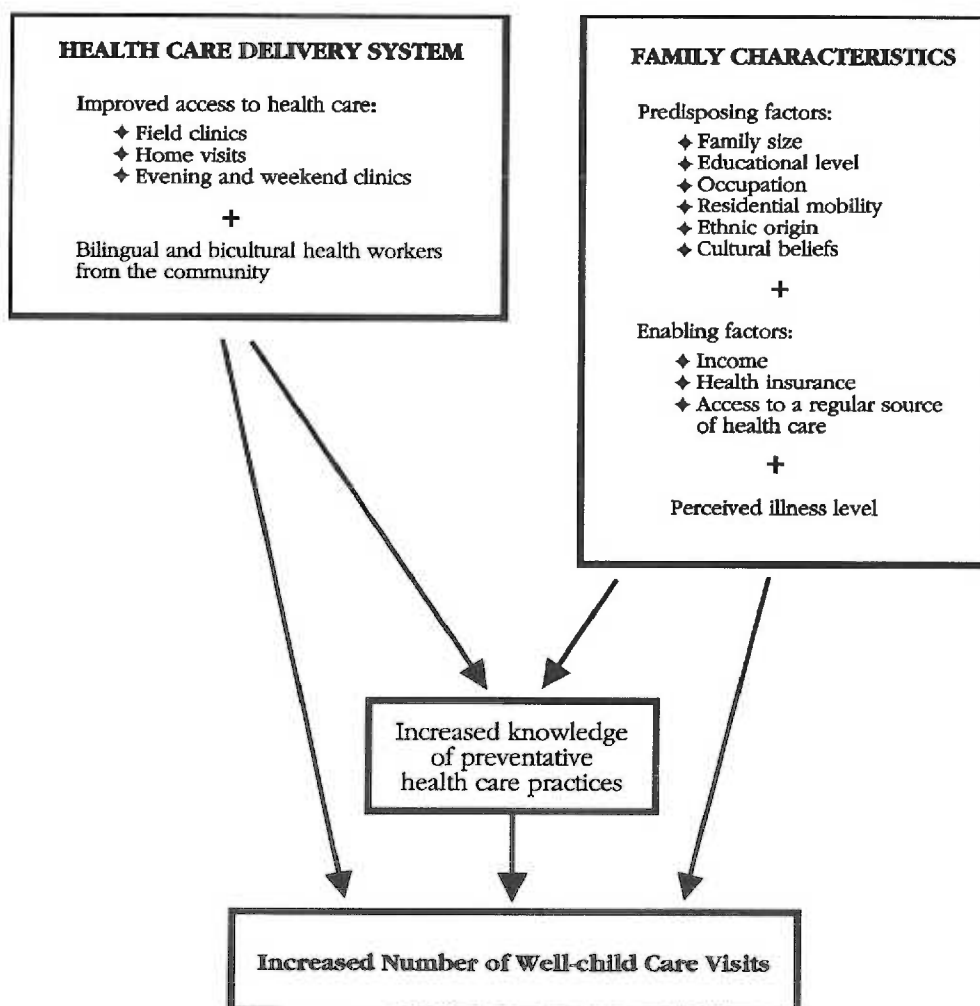
The specific research questions that are asked in this study are:

1. Did the El Niño Sano program increase the number of well-child care visits in MSFW children?
2. Was there a relationship between the location of the well-child care visit and the frequency of well-child care visits?

3. Was there a relationship between health insurance coverage and the number of well-child care visits?
4. Did the indigenous community health promoters increase the parental knowledge of childhood preventive health practices?
5. Was there a relationship between parental knowledge and the number of well-child care visits?

FIGURE 3

A Conceptual Framework of the Goals of El Niño Sano Program



6. Was there a relationship between the frequency of encounters in El Niño Sano program and parental knowledge of childhood preventive health care practices and the number of well-child care visits?

The answers to these questions will provide valuable information to many health professionals who are searching for effective strategies to promote preventive health care practices that lead to the prevention and early detection of many preventable and treatable health conditions.

CHAPTER II

METHODS

The purpose of this study was to explore the effect of the ENS program on childhood preventive health care practices by MSFW families. One important aspect of this study was to determine if the ENS program is an effective strategy to increase the utilization of well-child care visits among MSFWs. A second component of this study explored the effect of the indigenous community health promoters on parental knowledge of childhood preventive health care practices. This study looked at two separate samples of Mexican farmworkers in Hood River County to obtain the necessary data to answer all of the research questions presented earlier. The methods of data collection included a review of pediatric medical files from the local clinic and data from a previously collected health questionnaire (see Appendix A) on childhood preventive health care practices. The design of the study, sampling procedures, definitions of the variables, and the methods of data collection are further described in the sections below.

DESIGN

A non-experimental ex post facto research design was utilized to retrospectively evaluate the change in the MSFWs utilization of well-child care services and parental knowledge of childhood preventive health care practices. The conceptual framework presented earlier suggests that knowledge, the structure and organization of the health care delivery system, and the enabling factors such as the presence of health insurance affects the utilization of well-child care services. Therefore, the variability in the type and frequency of encounters with the ENS program, in addition to parental knowledge and the presence of health insurance was evaluated with respect to the outcome.

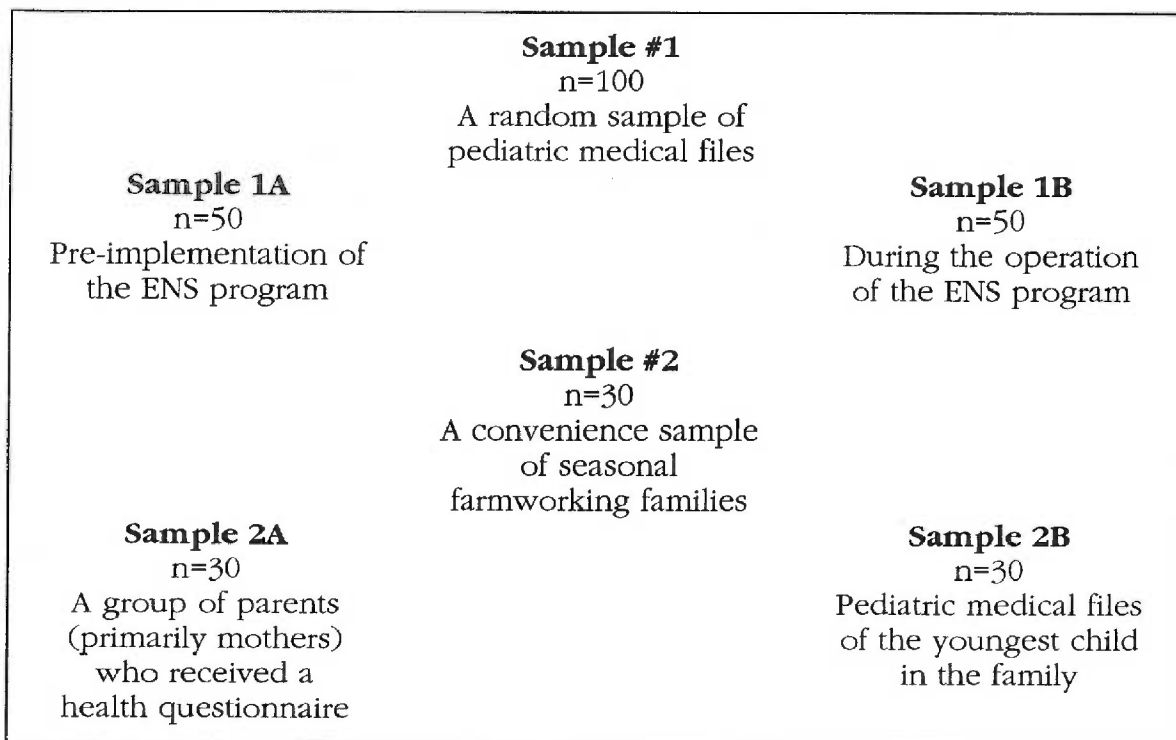
SAMPLING PROCEDURES

The conceptualization of the problem and the review of the literature presented earlier focused on the migrant and seasonal farmworkers. However, due to the inability to obtain complete data on the frequency of well-child visits in the migrant farmworkers, this study focused on the seasonal farmworkers who do not migrate to find work. Thus, the findings from this study will only be generalizable to a population of Hispanic seasonal farmworkers. Two different samples, each with a sub-sample were utilized to answer all the research questions. The utilization of pre-existing data on the parental knowledge of childhood preventive health care practices did not allow for a large enough sample or randomization of the sample. Thus, an additional sample selected at random was utilized to provide a sample that best represents a population of children of seasonal farmworkers. The specific sampling procedures are described in detail below. Additionally, a summary of the different samples utilized is presented in Figure 4.

The first sample compared data from 50 pediatric medical files (sample 1A) from a two year period prior to the implementation of the ENS program to 50 pediatric medical files (sample 1B) from the most active two years that the ENS program was in operation to determine if the ENS program was instrumental in increasing the frequency of well-child care visits. The criteria for inclusion in this first sample was that all 100 pediatric clients in the sample must be Hispanic permanent residents of Hood River County between birth and eighteen years of age. Both their parents must be Hispanic and at least one must be a seasonal farmworker. Additionally, the pediatric client must be an established client during the two year study period. This means that the pediatric client must have an existing medical record at the clinic; or if the client is under two years of age, the child's family must have a prior record of medical services at the clinic. This

confirmed that the family was an established client of the clinic and controlled for the possibility of error, in which the investigator might include a client who had recently arrived to Hood River County.

Figure 4
Samples Utilized in the Study



The first sample of pediatric medical files were systematically selected at random from the clinic's computer. Two separate lists of children were produced for each period of study. These lists included all of the children who were under the age of eighteen at the end of each respective two year study period. From these two lists all children who did not have an Hispanic surname, who were not from a seasonal farmworking family, and who did not have a medical file at the beginning of the study period were eliminated from the sampling. Every sixth child remaining on the list generated for the two year period of study prior to the implementation of the ENS program was included to create sample 1A. Every

eighth child remaining on the list generated for the period of study during the most active two years of the ENS program represents sample 1B. In the case that the medical file did not meet the criteria for inclusion in the sample the subsequent medical file was selected. Thus, these two sub-samples comprise the 100 pediatric medical files that were utilized in a cross-sectional analysis of the utilization of well-child care services.

The second sample was a convenience sample of paired pre and post intervention questionnaires from 30 Mexican-American MSFW families. Initially 51 questionnaires were completed by the promotoras during first home visits to assess the educational needs of the families and the population. The attrition in the final sample ($n = 30$) was expected due to the frequent mobility and migration in MSFW families. The first home visits occurred between October 1989 and October 1990. The final home visits, at the end of the program, were conducted in August and September of 1991 by the promotoras to evaluate changes in the families' knowledge level at the end of the ENS program.

A sub-sample of these 30 families was utilized to determine if there was a relationship between parental knowledge and the utilization of well-child care. This sub-sample, sample 2B, consisted of one child from each of the 30 families surveyed. The youngest child in the family was selected since younger children more frequently receive medical services.

DEFINITIONS OF VARIABLES

This study asks six questions to explore the relationships between the various components of the ENS program (described in Figure 2) to parental knowledge of childhood preventive health care practices and the number of well-child care visits realized by the children of seasonal farmworkers. Additionally, this study addressed two enabling variables, health insurance and the location of

the well-child care visit that might have influenced the utilization of well-child care services. Definitions of these variables and their relationships are provided in Figure 5.

METHODS OF DATA COLLECTION

The data needed for this study were obtained from pediatric medical files and computer files at the local migrant health clinic, and from a health questionnaire designed for the ENS program.

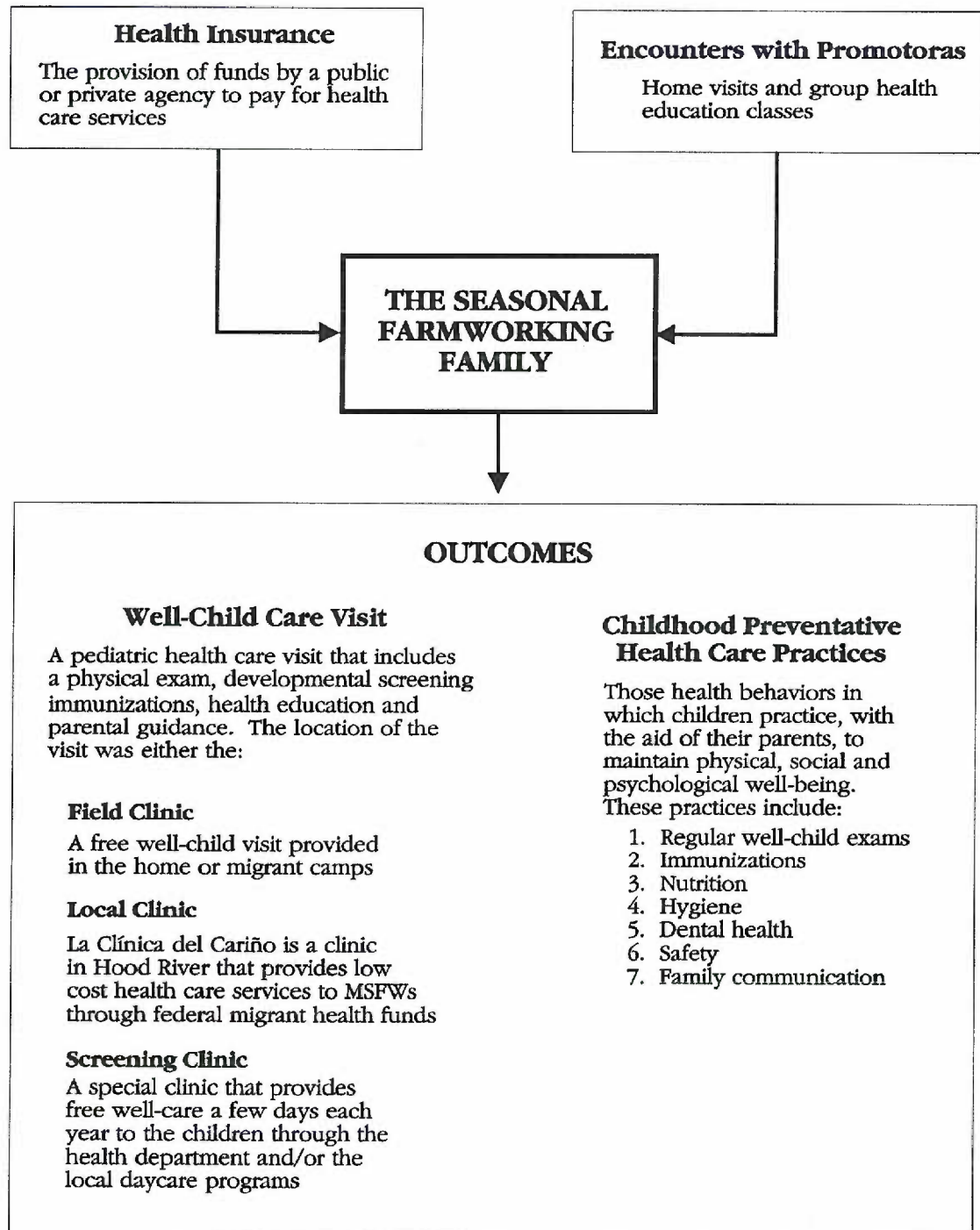
Medical Files

The medical files of the pediatric clients at the local migrant clinic contained the data from the health care visits at the clinic as well as those visits with the ENS program and other well-child care screening programs in the county. Each medical file was examined by the investigator to obtain the necessary demographic data, the number of well-child care visits completed, and the location of the visit. The reliability of the data extracted from the medical records depended upon the clinic's ability to consistently and accurately record demographic data and all health care encounters.

The demographic data in the medical files were obtained by the clinic's staff based upon client self-report. The demographic data obtained by the investigator included the child's date of birth, sex, family size, race, and whether the head of family has a seasonal farmworker. A review of the progress notes provided information about purpose and location of the visit. All of the well-child visits were recorded on well-child examination forms which varied with the location of the visit. Additionally, recorded in the progress notes was a notation referring to the well-child examination form and the specific setting in which the physical examination was performed.

Figure 5
Definitions and Relationships of Variables

**THE ENS PROGRAM:
 A Health Care Delivery System**



Each medical file was also examined for the number of encounters that the child and the family had with the promotoras in the ENS program. However, data on the families' participation in health education classes and informal meetings in the neighborhood were not recorded. Thus, the overall reliability of the data on the frequency of encounters with the promotoras were inadequate.

Computer Files

The clinic's files on the method of payment for services rendered were recorded on a computer. A computer print out listing of the method of payment for each clinic visit made by the clients was available. This list was utilized to determine the presence or absence of health insurance for all the clinic visits for each subject in sample 1B. These data helped determine the effect of health insurance on the utilization of well-child care services.

Health Questionnaire

The health questionnaire (see Appendix A) that was utilized by the promotoras during the first home visits served as the instrument to assess the parental knowledge of preventive health care practices. This questionnaire was developed by the project physician and reviewed by the program coordinator and the seven promotoras in the ENS program to determine content validity. The questionnaire consisted of open-ended questions that were rated by the promotora as "no idea", "needs more information", and "information appropriate". The questionnaires were administered by the promotoras to a sample of MSFW families, sample #2, during the promotora's first home visit with the family and at the end of the program to evaluate if there was a change in the families' knowledge level. Additionally, the final questionnaire assessed the family's self-reported frequency of contact with the promotoras during the ENS program.

The questionnaires were intended to be utilized with both parents present, yet many of the promotoras report that the mothers were the ones who answered the questions. The promotoras were instructed to only ask the questions exactly as they were written and not to engage in discussion until they had terminated the questionnaire. The same promotora who administered the pre-questionnaire on the first home visit administered the post-questionnaire on the final home visit with another promotora to assure intra- and inter-rater reliability. Thus, there were three questionnaires completed for each family.

SUMMARY OF METHODOLOGY

In conclusion this non-experimental ex post facto research study was designed to discover the effect of the ENS program on the utilization of well-child care services and parental knowledge of childhood preventive health care practices. Data were gathered from the computer and medical files at the local migrant clinic. Additional data were obtained from a health questionnaire that was administered by the promotoras to assess parental knowledge. A random sample of pediatric clients in Hispanic seasonal farmworker families was systematically selected to explore the program's effect on the utilization of well-child care services. Additionally, data were collected to discover the effect of health insurance and the location of the visit on the number of well-child visits achieved. Data on the effect of the ENS program on parental knowledge of childhood preventive health care practices were obtained from the health questionnaires administered to a convenience sample of MSFW families. Additionally, these data were used to relate knowledge and the frequency of family encounters with the ENS program to the utilization of well-child care services.

CHAPTER III

ANALYSIS AND RESULTS

This study addressed six research questions to evaluate the effect of the ENS program on the frequency of well-child care and parental knowledge of preventive health care practices. These questions are:

1. Did El Niño Sano program increase the number of well- child care visits in MSFW children?
2. Was there a relationship between the location of the well-child care visit and the frequency of well-child care visits?
3. Was there a relationship between health insurance coverage and the number of well-child care visits?
4. Did the indigenous community health promoters increase parental knowledge of childhood preventive health practices?
5. Was there a relationship between parental knowledge and the number of well-child care visits?
6. Was there a relationship between the frequency of encounters in El Niño Sano program and parental knowledge of childhood preventive health care practices and the number of well-child care visits?

Two different samples were utilized to obtain the necessary data to answer the research questions in the study. These data were then analyzed using various descriptive and inferential statistics. The characteristics of these samples, the methods for analysis, and the results from the data are presented in the sections below.

CHARACTERISTICS OF THE SAMPLES

The sample of 100 pediatric client files that were randomly selected represents sample #1. The demographic characteristics of this sample are shown in Table 3. The age of the children on the final day in the period of data collection ranged from five months to sixteen years nine months with a mean age of six years two months. Both subgroups, the pre-intervention sample (1A) and the sample of children studied during the ENS program (1B), were similar in age with no statistical difference ($t = 0.2938$; $p > 0.50$). Additionally, both subgroups were similar with respect to gender of the children ($\chi^2 = .6494$; $p > 0.50$) and family size ($t = 1.367$; $p = 0.1747$).

The sample of 30 MSFW families post-tested by the promotoras represents sample #2. The demographic characteristics of this sample are also shown in Table 3. The age of the children, on the final day in the period of data collection, ranged from five months to sixteen years and two months with a mean age of four years and three months.

RESEARCH QUESTIONS

Question # 1: Did El Niño Sano program increase the number of well-child care visits among MSFW children?

The main purpose of this study was to evaluate the effect of the ENS program on the frequency of well-child care visits in the children of seasonal farmworkers. The first question asked if the ENS program increased the number of well-child care visits among children of seasonal farmworkers. The methods for analysis and the results are presented below.

Table 3
Characteristics of the Samples

	Sample 1A	Sample 1B	Sample 2
Age in months			
Mean	75.74	72.72	51.90
Median	69.00	69.50	41.00
Range	6 to 199	5 to 203	5 to 194
Family Size			
Mean	5.3	4.82	4.93
Median	5.0	4.0	4.5
Range	3 to 11	3 to 9	3 to 8
Sex			
Females	26	30	13
Males	24	20	17

The medical files in Sample #1 were utilized to obtain the actual number of well-child care visits realized. This number of well-child care visits was then identified as a proportion of the expected number of well-child visits for the child's age based upon the local clinic's standards for well-child care (Figure 1). This method of analysis yielded a percentage of well-child care visits which controlled for the variance in the expected number of visits required at different ages of the children.

This study found a difference in the mean percentage of well-child care visits in the sample of children pre-intervention (mean 39.8%) and the sample of children during the intervention project (mean 53.4%). A t-test approached significance in the difference between the subgroups in the percentage of well-child care visits attained ($t = -1.862$; $p = 0.0656$).

Question # 2: Was there a relationship between the location of the well-child care visit and the frequency of well-child care visits?

The majority of well-child care visits occurred at the local health clinic. However, many children received their well-child care through the field clinics of the ENS program, where well-child care was provided in their homes or a neighbor's home. Additionally, many of the preschoolers received their well-child care through yearly screening programs sponsored by the health department and in their local daycare centers.

Data were obtained from the medical files at the local clinic included those well-child care visits in the field clinic and screening clinic in addition to the well-child care visits at the local clinic. However, not all of the well-child care visits were attained at the same location in some of the children. This made the analysis of this question was difficult. For the purposes of analyzing the data, when fifty percent or more of the visits occurred through the ENS field clinics or through the screening and daycare programs, the clinic location was classified in these respective categories. 70.4% of the children placed in the field clinic or screening clinic category achieved all their well-child care visits in that respective category. The distribution of the visits among the ENS field clinic and the screening clinic are presented in Table 4.

A chi square test was utilized to determine if the location of the well-child care visit was an important variable in the utilization of well-child care services. The locations of the visits were broken into three categories: the local migrant clinic, field clinics through the ENS program, or other screening clinics through the health department or the local daycare programs in the community. The relationship between the location of the visit was then compared to the percentage of well-child care visits achieved. The well-child visits were also broken down into three separate categories low (2%), moderate (50%), and high (50%). Low

meant that less than 50% of expected visits were attained while high meant that more than 50% of expected visits were attained. Moderate meant that the child attained exactly 50% of the expected well-child care visits. The relationship of well-child care visits to the location of the visit is presented in Table 5.

In the two samples surveyed during the intervention project, 25% of the children received their well-child care through the ENS program, 17.9% received their well-child care through the other screening clinics provided in the community, and 57.8% received their well-child care at the local clinic. Through a chi square test with Yates correction (to help adjust for the cells with expected frequencies less than five), no significant relationship between the location of the visit and the percentage of well-child care visits attained was demonstrated (Sample 1B: $\chi^2=3.550$; $p = 0.1695$; Sample 2: $\chi^2=2.377$; $p = 0.6668$).

Question # 3: Was there a relationship between health insurance coverage and the number of well-child care visits?

Of the many determinants to the utilization of health care services that were discussed earlier, the presence or absence of health insurance was found to be an important variable in the utilization of health care services (Anderson, et al., 1981; Estrada, et al., 1990; Guendelman & Schwalbe, 1986; Trevino, et al., 1991). In this study many of the children did not have any kind of public or private health insurance to pay for their well-child care. Thus, health insurance appears to be an important variable that affects outcome.

Table 4
Distribution of Well-Child Care Visits among the Different Locations for both Sample 1B and Sample 2

Location of visits	Number of Visits			
	>50%		All	
ENS Field Clinic	7	(43.75%)	9	(56.25%)
Screening/Daycare	1	(9%)	10	(91%)
	8	(29.6%)	19	(70.4%)

Table 5
Relationship of Well-Child Care Visits to the Location of the Visit

Combined Sample	Site of Visit		
	LCDC: Local Clinic	ENS: Field Clinic	Screening or Daycare
	37 (57.8%)	16 (25.0%)	11 (17.9%)
Sample 1B			
Low: <50%	6	0	0
Moderate: 50%	8	7	3
High: >50%	10	6	1
	24 (58.5%)	13 (31.7%)	4 (9.8%)

$$\chi^2 = 3.550$$

$$df = 4$$

$$p = 0.1695$$

Sample 2			
Low: <50%	5	0	0
Moderate: 50%	1	0	2
High: >50%	7	3	5
	13 (56.5%)	3 (13.0%)	7 (30.4%)

$$\chi^2 = 2.377$$

$$df = 4$$

$$p = 0.6668$$

The method of payment for each well-child care visit was obtained from the local clinic's computer files for sample 1B. Those visits for which payment was received from Medicaid or a private insurance company were placed in the health insurance category. All other visits that were not billed out to a third party were classified in the no insurance category. Out of the fifty subjects surveyed only eleven had any form of health insurance; nine of which were Medicaid.

The presence or absence of health insurance was then compared to the percentage of well-child care visits realized utilizing a chi-square. Three different categories of the percent of well-child care visits were formed: low (2%), moderate (50%), and high (50%). The relationship of well-child care visits to health insurance is presented in Table 6.

Table 6

Relationship of Health Insurance to Well-Child Care Visits

Percent of Visits	Health Insurance			
	Yes	No		
Low: <50%	2	3	15	(38.5%)
Moderate: 50%	2	16	18	(46.2%)
High: >50%	7	10	17	(43.5%)
Total	11 (22%)	39 (78%)		

$\chi^2 = 3.550$ $df = 4$ $p = 0.1695$

The results of the chi-square test, with Yates correction (to help adjust for the cells with expected frequencies less than five) indicated that health insurance was not a significant factor in attaining the recommended well-child care ($\chi^2 = 3.550$; $p = 0.1695$). Further analysis eliminating the seventeen subjects who received free health care services through the daycare centers, screening clinics, and the ENS field clinics and collapsing the cells to accommodate for the lower

than expected frequencies is presented in Table 7. This method of analysis utilizing a chi square without continuity correction yielded significant results ($\chi^2 = 4.95$; $p = 0.0261$). Thus, health insurance is a significant factor in attaining well-child care when there is a cost to the family for well-child care services.

Table 7
Relationship of Health Insurance to Well-Child Care
Revised

Percent of Visits*	Health Insurance		
	Yes	No	
Low: 0% to 49%	2	13	(45.5%)
High: 50% to 100%	9	9	(54.5%)
Total	11 (33.3%)	22 (66.6%)	

$$\chi^2 = 4.95 \quad df = 1 \quad p = 0.0261$$

* Included only those subjects who received well-child visits at the local clinic, where payment for services was required.

Question # 4: Did the indigenous community health promoters increase parental knowledge of childhood preventive health care practices?

The sample of seasonal farmworking families was evaluated to determine the effect of the ENS program on the knowledge of preventive health care practices and the number of well-child care visits. A health questionnaire was administered to sample #2 by the promotoras to measure the difference between the parental knowledge level at the first home visits and at the final home visit. As described earlier, each question was categorized as "no idea", "needs more information", and "appropriate answer" by the promotoras. These health questionnaires were scored by tallying the frequency of responses in each category and multiplying the frequency by an assigned numerical value to each category. A score of two was given for each "appropriate answer", one point for

each answer that “needs more information”, and no points were given when the subject had “no idea” of the answer. A work sheet for obtaining a score is presented in Appendix B. The final scores were used in a paired t-test to measure the difference in the mean scores of the pre and post questionnaire on parental knowledge of childhood preventive health care practices.

The questionnaire, consisting of twenty questions had a possible maximum score of forty indicating complete knowledge of childhood preventive health care practices. The results are found in Table 8. In those questionnaires completed on the first home visit, the overall mean score was 17.26. Both of the post-questionnaires that were completed on the last home visit yielded similar means (24.93 & 24.97) with no statistical difference, assuring inter-rater reliability. Comparing the pre-knowledge scores and the combined post mean score, a paired t-test indicated that there was a significant increase in the parental knowledge of childhood preventive health ($t = 6.684$; $p = 0.0001$).

Table 8

Parental Knowledge of Childhood Preventive Health Care Practices

	Pre-test	Post-test A	Post-test B
Mean	17.26	24.93	24.97
Median	18.00	25.50	25.00
Standard deviation	7.45	4.19	4.31

Mean of both post-tests: 24.95

Standard deviation of both post-tests: 4.186

$t = 6.864$ $p = 0.0001$

Question # 5: Was there a relationship between parental knowledge and the number of well-child care visits?

The health questionnaire addressed many questions on childhood preventive health care practices. One important preventive health measure is the need for routine well-child care visits. The parents' knowledge of childhood preventive health care practices on the post questionnaire was compared with the utilization of well-child care services for their youngest child. The number of well-child care visits which occurred between the first home visits and the final home visits, were extracted from the medical files of the youngest child in the family (sample 2B). The actual number of well-child care visits realized were then adjusted to the expected number of well-child visits for the child's age based upon the local clinic's standards for well-child care (figure 1). This method of analysis yielded a percentage of well-child care visits which controlled for the variance in visits for the different ages of the children in the sample. The percent of well-child care visits were then retrospectively correlated, utilizing a Pearson's r , with their parent's knowledge scores from the final health questionnaire. The results indicated that there was no statistically significant relationship between knowledge and the utilization of well-child care services ($r = -0.0583$; $P = 0.7596$).

Question # 6: Was there a relationship between the frequency of encounters in El Niño Sano program and parental knowledge of childhood preventive health care practices and the number of well-child care visits?

Although many MSFW families had contact with the promotoras in the ENS program, not all received an equivalent amount of contact with the program. The frequency of encounters that the families had with the ENS program appeared to be an important variable in the study. Thus, the number of encounters were

compared with the utilization of well-child care services and the parental knowledge of childhood preventive health care practices.

The last two questions on the post-questionnaire administered to sample #2 addressed the frequency of encounters that the family had with the ENS program. The parents were asked about the number of times that the promotoras visited their home and the number of health classes in which they attended. The distribution and frequency of these encounters are presented in Table 9.

Table 9

Encounters with the ENS Program Promotoras

	Visits	Classes
Mean	3.80	0.97
Median	3.00	1.00
Range	1 to 18	0 to 5

The frequency of self-reported encounters was correlated with the percentage of well-child care visits realized by the youngest child in the family using a Pearson's r . Additionally, a Pearson's r was utilized to correlate the frequency of encounters with the promotoras to parental knowledge of childhood preventive health care practices. The frequency of encounters with the promotoras, through both the home visits and classes, was not a significant factor in post knowledge scores or the percentage of well-child care visits attained (see Table 10).

Table 10
Pearson's r Correlations of the Encounters with the ENS Program

	ENS Encounters	
	Visits	Classes
Post-knowledge	r= 0.2609	r= -0.0235
	P= 0.1638	P= 0.9020
Well-child visits	r= -0.1925	r= -0.0941
	P= 0.3082	P= 0.6207

SUMMARY OF RESULTS

The percentage of well-child care visits attained prior to the implementation of the ENS program was compared to those visits realized during the most active two years of the ENS program with a t-test of two independent samples. Both samples of 50 pediatric clients were similar in age, gender, and family size. The difference approached statistical difference ($p = 0.0656$).

Further analysis into the effect of the field clinics which provided free well-child care services and health insurance on the utilization of well-child care was explored with the 50 pediatric clients surveyed during the active phase of the ENS program. The results utilizing a chi square showed that the location of the visit did not affect the utilization of well-child care visits. However, those children who had health insurance were most likely to receive the recommended well-child care. The results utilizing a chi square found that in those children who received well-child care through the fee for service local migrant clinic, health insurance appeared to be a significant variable in the percentage of well-child care visits attained.

A significant change in parental knowledge of childhood preventive health care practices occurred due to the presence of the ENS program. A paired t-test

indicated a statistically significant increase in parental knowledge from pre and a post health questionnaires administered to 30 families. Additionally, the relationship between the frequency of parental encounters with the ENS program and their post knowledge level of childhood preventive health care practices was explored. Utilizing a Pearson's r , no significant correlation was found between the number of encounters and knowledge.

The percent of well-child care visits of the youngest child in the sample of 30 families surveyed were analyzed further to see if there was a relationship between their parent's knowledge of childhood preventive health care practices and utilization of well-child care services. Analysis with a Pearson's r showed no significant relationship. Additionally, the number of parental encounters with the ENS program were correlated with the child's percentage of well-child care visits realized. Again, with a Pearson's r , no significant correlation was found.

CHAPTER IV

DISCUSSION

The ENS program was instituted to improve the utilization of well-child care services among MSFW families through the utilization of promotoras commonly known as indigenous community health promoters (ICHP). Studies on ICHP programs, such as the ENS program, indicates that ICHP programs improve the utilization of preventive health care services (Arole, 1978; Bentley, 1989; Bone, et al., 1989; Gonzalez & Woodward, 1974; Matomora, 1989a, 1989b; Ministry of Health, Costa Rica, 1982; Stewart & Hood, 1970; Watkins, et al., 1990). This particular research study found that the well-child care visits increased after the institution of the ENS program. Although, this increase was not statistically significant, the difference approached statistical significance ($p = 0.0656$).

This study explored those factors such as family characteristics, the characteristics of the health care delivery system, and parental knowledge of preventive health care practices that influenced the utilization of well-child care services. First, the presence of health insurance was one factor that did not enable the families to attain well-child care services for their children. Other family characteristics such as income, educational level, and cultural beliefs were not explored and may have influenced the results of the study. Second, the health care delivery system of the ENS program which included well-child care services provided in the field and encounters with the promotoras did not influence the utilization of well-child care services. However, the design and methodology used in evaluating the effectiveness of this unique health care delivery system may be the reason for the lack of significant results. Finally, although there was an increase in parental knowledge of childhood preventive health care practices, the change in knowledge was not a significant factor in the utilization of well-child

care services. Here the reliability and validity of the instrument utilized for obtaining data may have been responsible for the lack of statistically significant results. Those factors that influenced the utilization of well-child care services are presented in greater detail below.

FAMILY CHARACTERISTICS

The conceptual framework utilized in this study identified the predisposing and enabling factors of the families which are determinants to the utilization of preventive health care services. The sampling procedures controlled for the variability in the predisposing variable of ethnic origin, occupation, and residential mobility. The characteristics of both sub-samples from the randomly selected sample of pediatric clients were similar in age, gender, and family size, therefore, controlling the influence of these extraneous variables on the utilization of preventive health care services.

One predisposing factor that was not adequately controlled in the sampling was the cultural beliefs of the subjects. Although ethnic origin was controlled through the sampling procedures, not all Hispanics have similar cultural beliefs. When the Hispanics immigrate into a culturally different society, as the MSFWs from Mexico, they undergo a process of acculturation. The literature suggests that the level of acculturation of Mexican-Americans influences the utilization of health care services (Chesney, et al., 1981; Estrada, et al., 1990; Slesinger & Cautley, 1981; Wells, et al., 1989). Thus, the lack of significant results of the study may be due to a difference in the level of acculturation between the sub samples.

Another predisposing factor that was not adequately controlled in the sampling was the educational level of the families. The review of literature indicated that the undereducated tended to utilize folk medicine rather than conventional health care services (Martus, 1986). Thus, the lack of significant

results of the study may be due a difference in the parents' educational background which influenced their use of conventional medical services.

The literature has shown that income and health insurance are important determinants to the utilization of health care services (Anderson et al., 1981; Estrada, et al., 1990; Guendeman & Schwalbe, 1986; Trevino, et al., 1991). The ability to obtain accurate data on the income of the subjects was hampered because their income varied throughout the year due to the nature of their seasonal work. Thus, this study looked at health insurance as an enabling factor in obtaining well-child care.

The results of the chi square test did not indicate any difference in the percent of well-child care visits attained for those with health insurance. One reason could have been due to the small sample which yielded expected frequencies less than five. Another possibility was that availability of free screening clinics through the daycare centers, screening clinics, and the ENS field clinics skewed the results due to the availability of free well-child care services. A re-evaluation of the data eliminating the seventeen subjects who received free health care services and collapsing the cells to accommodate for the lower than expected frequencies yielded significant results ($p = 0.0261$). Thus, it appears that a lack of health insurance is one barrier to the utilization of well-child care services.

HEALTH CARE DELIVERY SYSTEM

The conceptual framework, based upon the review of literature, acknowledged that access to health care and a lack of bilingual and bicultural health care workers limited MSFW families utilization of health care services. The local migrant clinic and the ENS program helped to reduce those barriers to health care imposed by the health care delivery system. Both the clinic and the ENS

program provided bilingual and bicultural staff to reduce those communication barriers. However, the ENS program helped to improve the access to health care by bringing health care services into the MSFWs home and community. Health education and health care services were provided in the field during evening and weekend hours to aid in the reduction of those barriers imposed by the long work day and lack of transportation in MSFWs.

One of the research questions evaluated the effect of the field clinics on the utilization of well-child care. The results did not show any significant correlation between the percent of well-child care visits realized and the location where the child received his well child care. One reason may have been due to the sampling criteria which excluded children of migrant farmworkers who might lack the knowledge of the local resources and utilized the field clinic greater than the children of seasonal workers. Another factor was the small sample size that did not provide enough information to adequately analyze the data with a chi-square. Attempts to analyze the data through combining sample 1B and sample 2 and reducing the number of categories utilized in the chi-square. Yet, these techniques still resulted in expected frequencies less than five and insignificant results.

Another research question explored the effect of encounters with the ENS program promotoras on the utilization of well-child care services. The results did not show a significant correlation of parental knowledge and the percent of well-child care visits realized to the frequency of contacts with the ENS program through either home visits or classes. One reason for the lack of significance is the lack of reliable data. The number of encounters with the ENS program was obtained through self-report which lacks reliability. An attempt was made to gather data from the medical records on the frequency of encounters. However, due to the characteristics of the ENS program, many contacts with the promotoras

were informally conducted in the local store or neighborhood. Additionally, the attendance in the health classes and many of the informal activities of the ENS program were not documented in the medical records. These undocumented contacts made the families self-report more reliable than the medical records.

KNOWLEDGE OF CHILDHOOD PREVENTIVE HEALTH CARE PRACTICES

The review of literature presented conflicting reports on the effect of ICHP programs on the knowledge of preventive health practices. Watkins, Larson, and Harlan (1990) found no difference in knowledge of preventive health practices among communities served by the ICHPs, whereas Bently (1989) found both an increase in maternal knowledge and the utilization of preventive health care practices. Therefore, this study proposed that ICHP programs, such as the ENS program, improved both the knowledge and utilization of preventive health care practices.

The results indicated that there was a significant improvement in the parental knowledge of childhood preventive health care practices. However, this knowledge did not change the utilization of well-child care services. One potential reason for the lack of significant results was the validity of the health questionnaire. The questionnaire was designed and administered prior to the proposed study. The questionnaire measured knowledge on many different childhood preventive health care practices, such as nutrition, dental health, hygiene and safety. Only two of the questions addressed the frequency and reasons for attaining well-child care. In analyzing these two questions (question #1 & #2) only 6.6% of the parents had adequate knowledge as to the reasons why they should take their child in for a well-child exam; and only 23.3% had adequate knowledge of the frequency in which they should visit the clinic for a preventive health care exam. Thus, it appears that parental knowledge on the importance of

well-child care was inadequate. For this reason this study did not indicate a relationship between parental knowledge of childhood preventive health care practices and the utilization of well-child care services. However, educational theories indicate that knowledge acquisition does not always lead to behavior change. Many family characteristics such as attitudes, values, beliefs, and enabling factors influence behavior (Bower, 1985; Rankin, 1990). Thus, the characteristics of the family must be considered when relating knowledge to the family's behavior in the utilization of well-child care services.

CHAPTER V

SUMMARY AND CONCLUSIONS

The Mexican-American MSFWs in Hood River County and throughout the nation have experienced many health care problems that are preventable and treatable with adequate health supervision. A review of the literature has indicated that many MSFWs fail to obtain preventive health care due to the many environmental and social factors that deter them from utilizing health care services. Additionally, the literature presented clearly indicated that indigenous community health promoters influence preventive health care practice and improve the overall health status to many medically indigent populations. This research study evaluated the effectiveness of the ENS program on childhood preventive health care practices.

Design

This research design explored the effect of the health promotion services provided by the promotoras and the provision of well-child care through field clinics on the parental knowledge of childhood preventive health care practices and the frequency of well-child care visits among children of seasonal farmworking families. Data were obtained from the medical and computer files of pediatric clients at the local clinic and from a health questionnaire administered to the MSFW families. The data were analyzed to explore the various relationships between the components of the ENS program, the characteristics of the Mexican seasonal farmworking families in Hood River, and the frequency of well-child care visits in the children of Mexican seasonal farmworkers.

Conceptual Framework

The conceptual framework presented in this study looked at the impact of the health care delivery system and the specific family characteristics on parental knowledge of preventive health care practices and the utilization of preventive health care services. Utilizing this conceptual framework six research questions were presented to determine if the ENS program is an effective strategy for increasing the knowledge of childhood preventive health care practices and the utilization of well-child care services among seasonal farmworking families.

Research Questions

The first question looked at the difference in frequency of well-child care visits between a sample of children prior to the implementation of the ENS program and the children who were impacted by the ENS program. Although the results were not significant there was a difference in the mean percent of well-child care visits attained by the intervention group. Determinants to the utilization of health care services such as the health care delivery system and family economics were variables of concern. Therefore, the second and third questions proposed that the location of the visit and the method of payment for services were important variables to the utilization of well-child care.

The second question explored the effect of well-child care services provided in the home and neighborhood of the farmworkers as a strategy for improving the utilization of services. There was no relationship found between the location of the visits and the utilization of well-child care services. However, many utilized the free field clinics in addition to other free screening programs in the area.

The third question explored the influence of health insurance on the utilization of well-child care services. Through various methods of analysis, health

insurance appears to be a significant factor in attaining well-child care services. Unfortunately, many MSFWs do not have private health insurance or are they eligible for public assistance.

The fourth question proposed was significant. The study proved that the ENS program increased the parental knowledge of childhood preventive health care practices. However, this knowledge did not result in a higher utilization of well-child care services (question #5). One belief, addressed in question # 6, was that the frequency of encounters with the ENS program influenced parental knowledge and utilization of preventive health practices. However, this belief was unfounded.

LIMITATIONS

The limitations of this study may explain the lack of significant results in addition to threatening those significant results. They include a lack of external validity, a threat to internal validity, problems in the methods of analysis, and potential lack of reliability in the data. These limitations are discussed below.

The main limitation in the study was that this study lacked external validity. The ENS program was designed to provide health care services to both the children of seasonal farmworkers and the migrant children. However, due to the difficulty in obtaining reliable data on the mobile migrant children the sample in this study only included seasonal farmworking families. Thus, this study does not evaluate the true objectives of the ENS program; and the results can only be generalized to the seasonal farmworking family.

The methodology utilized in the sampling of this study may be responsible for the lack of significant results. The inability to control for all of the enabling and pre-disposing variables of family characteristics threatens the internal validity of the study. The criteria for inclusion in the sample assured that all subjects were

Hispanic seasonal farmworkers. The characteristics of the randomly selected sample proved that there was no significant difference in age, gender, or family size of the subjects. However, the sampling did not control for the economic, educational, and cultural factors that affect the utilization of well-child care services.

Although all subjects in the sample were of Hispanic origin, not all have similar cultural beliefs. The level of acculturation in the sample was not controlled. Thus, if there is a cultural component to family's utilization of well-child care services, the difference in the level of acculturation in the sample limits the internal validity of this study.

The sampling procedures also failed to control for the various educational levels among the families. The parental education of the subjects may have influenced how the family perceived a need for well-child care services. Thus, limiting the internal validity of the study.

One research question found that the presence of health insurance increased the utilization of well-child care services. However, the small sample and the method of analysis does not adequately indicate that health insurance was the reason for families not utilizing well-child care services. Health insurance represents only a part of the family's economic picture. Thus, internal validity is threatened without controlling for the family's annual income in the sampling or research design.

The validity of the health questionnaire is of concern. The health questionnaire was not designed with this study in mind, and does not specifically address the objectives of the ENS program. Thus, one limitation to this study is the lack of congruence between the objectives of the program and the data collected. Additionally, the questionnaire was administered to a convenience sample of MSFW families which does not allow for a true representation of

families served by the ENS program. Finally, the questionnaire was administered by the health promoters who lacked training in the research process. They were employees who might have had a personal interest in finding a significant increase in parental knowledge resulting in a potential bias in the recording of parental knowledge.

Another limitation in this study was the methods of analysis. The small sample created problems in the chi square analysis. The expected frequencies that were less than five found in many of the chi-square tests make this method of analysis inappropriate. Collapsing the categories utilized for analysis was not possible because the validity of the research question would have been threatened. The best way to control for the less than expected frequencies was to utilize a median split test. However, a median split test was not possible due to frequency of subjects on the median. Finally, this limitation in the analysis might have been controlled by utilizing a larger sample.

The reliability of the data obtained from the medical records is of concern. Only the number of well-child care visits recorded in the medical files at the local clinic were utilized in the data. Efforts to control the reliability of the data was undertaken in the criteria for inclusion in the sample. Subjects whose medical files indicated migration or the utilization of another primary health care provider for preventive services were excluded from the sample. However, many of the seasonal farmworkers return to Mexico for the winter months. Thus, it is possible that some of the children in the sample received well-child care while in Mexico. Also there was a chance that the child had more well-child care visits through other providers that were not recorded in the medical files.

RECOMMENDATIONS

The results and limitations of this study indicate a need for more extensive research on ICHP programs to determine if this unique health care delivery system is an effective strategy for promoting preventive health care practice among MSFWs. Additionally, further research is indicated to determine if these preventive health care practices reduce the incidence of preventable and treatable health conditions among the MSFW population. Recommendations include improving the validity and reliability of this study through changes in the methodology and analysis. Specific strategies for future research are discussed below. Further research in the utilization of ICHP programs with the MSFW population needs to include not only seasonal farmworkers but the migrant farmworkers, to document the true effectiveness of these programs. The frequent mobility of the migrant farmworkers presents a challenge to health care providers and researchers who are unable to attain adequate health care records. Young, Kaufman, Larson, and Watkins (1990) proposed that family-carried growth records are a cost-effective tool for providing health care workers with the needed health data for continuity of care. Although no formal research has been conducted on the family-carried growth records, it appears that a tool like this will not only improve the health care services provided to the migrant children, but may serve as a tool to conducting research on migrant children.

Future research needs to address those economical and cultural factors that influences the utilization of preventive health care services in the MSFW population. Additionally, reliable and valid measures of the program's objectives need to be developed. Some specific strategies include:

1. Obtaining reliable data from a large sample to explore the effect of family income and health insurance on the utilization of health care services.

2. Qualitative studies to identify those cultural beliefs and family values that influence the families' utilization preventive health care practices.
3. The development of instruments that specifically address the objectives of the program for a valid research study.
4. A prospective study that documents all preventive health care services from a family-carried health care record of a selected sample to obtain reliable data.

Other ideas for future research include measuring the cost-effectiveness of ICHP programs. Employing health promoters and providing field clinics are costly services. Further research should explore this cost in relationship to the reduced operating costs of the local clinics with respect to follow-up phone calls and letters reminding clients of overdue preventive health care visits. Finally research must ask if ICHP programs will decrease the cost of health care associated with morbidity.

Although this research study indicated that the ENS program increased parental knowledge of childhood preventive health care practices, further research needs to assess the relationship between knowledge of specific preventive health care practices and the corresponding morbidity associated with the preventive practice. Specific questions to be addressed include:

1. Does parental knowledge on dental health decrease the incidence of dental caries among the MSFW children.
2. Does parental knowledge of nutrition decrease the incidence of anemia among MSFW children.
3. Does parental knowledge about hygiene reduce the number of communicable diseases.
4. Does parental knowledge of accident prevention reduce the morbidity and mortality of children due to trauma.

The ENS program was considered a success by the staff at the local migrant clinic and the MSFWs in the community. However, a formal evaluation on the satisfaction of this program within the medical and MSFW communities needs to

be completed. Despite the lack of formal research, the ENS program identified many other health problems in the MSFW community. As a result other health promoter programs surfaced in Oregon to serve not only the children of MSFWs, but the entire MSFW community.

The continual research into ICHP programs such as the ENS program will expand our knowledge on the effect of Indigenous community health promoters on preventive health care practices. This new knowledge provides a basis for planning health care services to improve the over all health status of MSFWs.

IMPLICATIONS FOR PRACTICE

Health care professionals are frequently key players in the development of unique health care delivery systems and in the allocation of resources. Research on the effectiveness of a unique health care delivery systems such as the ENS program, is needed for the planning and distribution of health care services and resources. Despite the lack of significant results, ICHP programs appear to have an influence on parental knowledge of childhood preventive health care practices and the utilization of well-child care services. The staff of the ENS program, the local migrant clinic, and the community all found the ENS program to be an important health care service for the MSFW community. Thus, making this program clinically significant. Additionally, it appears that family economics play an important role in the utilization of preventive health care services. Thus, health care providers should consider implementing low cost health care programs that utilize ICHPs to promote preventive health care practices. Finally, further research on the utilization of ICHP programs in the MSFW population as a strategy for improving preventive health care practices and over all health status of an individual, family, and community is vital to the success for achieving health for all.

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APPENDIX A

Questionnaire Utilized to Measure Parental Knowledge

* translated into English

Parents name _____ Date _____

Children _____ DOB _____

Directions: It is important, each time, to ask the questions exactly how they are written. If you find that the answer indicates a need more discussion, do not engage in discussion until you have terminated the questionnaire.

Rate the parents knowledge as:

1. Appropriate answer
2. needs more information
3. no idea Rating

1. Why should you bring a child to the doctor for a preventive visit when the child is not sick?

(Check if the parents mentioned:)

developmental evaluation

immunizations

blood test: Why? anemia other:

urine test: Why?

physical exam

dental exam

professional advice

check weight and height

other:

2. How many preventive visits (visits to the doctor when the child is not sick) should a child have before his first birthday?
3. Do you know how many immunizations the child should have in his first two years of life? _____.

What are the diseases that the immunizations prevent?

(Check if the parents mentioned:)

measles

rubella

polio

whooping cough

tetanus

diphtheria

chickenpox

other

4. What age should you quit bottle feeding a child?

5. What causes sickness, illness?
(Check if the parents mentioned:)
 too much air or cold
 poor nutrition
 (contamination to a microorganism) contact with germs
 other:
6. How do you prevent sickness, illness?
(Check if the parents mentioned:)
 immunizations
 good nutrition
 good hygiene, washing hands
7. What causes more problems: giving the baby the bottle in the day or at night?
8. At what age should the child wash his teeth with a tooth brush? At what age should the parents begin to wash the child's mouth?
9. Why is it not good to give sodas to a child?
10. Do you know what is the principal cause of death in children under 10 years of age?
11. Can you tell me some examples of fatty foods?
12. Why is it necessary to secure the child when traveling in a car?
13. What is the major cause of poisoning in children under six years of age?
14. If your child has anemia, what vitamin or mineral is lacking in his diet?
(Check if the parents mentioned:)
 iron
 other:
15. How are amebas, worms, and other intestinal parasites transmitted?
(Check if the parents mentioned:)
 contaminated water
 contaminated food
 from passing micro-organisms from feces to the food or water.
 other:
16. In your opinion what information should you give a young boy or girl about sexual relationships? At what age?
17. Do you feel you have been well informed about pesticides?
How are you able to protect yourself against pesticides?
18. In your opinion what is the explanation for child abuse or maltreatment?
19. What is better for the baby: breast milk or formula?
Why?

20. At what age is it good to begin to give solid foods (cereals or mashed foods) to the baby?

The post questionnaire added two more questions:

1. How many times has the health promoters visited your home?
2. How many health education classes conducted by health promoters have you attended?

APPENDIX B

Worksheet for Measuring a Change in Parental Knowledge

Subject # _____

Pre-test score

Total number of "appropriate answers" _____
 Multiplied by 2 equals

Total number of "needs more information" _____
 Multiplied by 1 equals

Total number of "no idea" _____
 Multiplied by 0 equals

Sum of ranked answers _____
 (range will be from 0-40)

Post-test score A

Total number of "appropriate answers" _____
 Multiplied by 2 equals

Total number of "needs more information" _____
 Multiplied by 1 equals

Total number of "no idea" _____
 Multiplied by 0 equals

Sum of ranked answers _____
 (range will be from 0-40)

Post-test score B

Total number of "appropriate answers" _____
 Multiplied by 2 equals

Total number of "needs more information" _____
 Multiplied by 1 equals

Total number of "no idea" _____
 Multiplied by 0 equals

Sum of ranked answers _____
 (range will be from 0-40)

Number of visits with the promotoras _____

Number of promotoras presentations _____

AN ABSTRACT OF THE THESIS OF LINDA CHRISTIE BARTER

For the Masters of Science in Nursing

Date receiving this Degree: June 1993

Title: An Evaluation of El Niño Sano Program:
A strategy for Promoting Health of Migrant Seasonal Farmworker Children

Approved: Catherine Burns
Catherine Burns R.N., Ph.D., P.N.P.
Thesis Advisor

The purpose of this study was to evaluate the effectiveness of a unique health care delivery system called the El Niño Sano Program (ENS). This program utilized Indigenous Community Health Promoters, known as promotoras, to provide bilingual and bicultural health promotion services to the children of migrant and seasonal farmworkers in Hood River, Oregon.

The main goal of this study was to explore the effectiveness of the ENS program on the utilization of well-child care. Additional research questions were proposed from a conceptual framework derived from the literature which addressed determinants of the utilization of health care services. These research questions explored the effect of the ENS program on the parental knowledge of childhood preventive health care practices and the relationship between knowledge and the utilization of well-child care services. Additional research questions explored the effect of health insurance coverage, the location of the well-child care visit, and the frequency of encounters with the promotoras in the ENS Program on the utilization of well-child care services.

A non-experimental ex post facto research design which utilized two different samples was used to evaluate the effectiveness of the El Niño Sano Program (ENS). The first sample was a random sample of 100 Hispanic children

of seasonal farmworkers. The second sample was a convenience sample of 30 seasonal farmworking families. Data were gathered from the computer and medical files at the local migrant clinic. Additional data were obtained from a health questionnaire that was administered by the promotoras to assess parental knowledge.

This study found that the utilization of well-child care services did not statistically improve from the implementation of the ENS program. However, the results approached statistical significance ($p = 0.0656$). The results indicated that the ENS program increased parental knowledge of childhood preventive health care practices. However, there was no relationship between knowledge and the utilization of well-child care services.

The presence of health insurance was found to be an important variable in the utilization of well-child care visits. Yet, the well-child care visits provided through the field clinic did not improve the utilization of well-child care services. Finally, the frequency of family encounters with the promotoras was not related to parental knowledge or the number of well-child care visits attained.

This study's generalizability is limited due to the sampling criteria which included only seasonal farmworkers. Failure to address the economical, educational, and cultural beliefs of the sample is another limitation of this study. Other limitations include the reliability and validity of the health questionnaire used in this study and the small sample size which created problems in the analysis.

Given the results and the limitations of this study further research is indicated to document the effectiveness of indigenous community health promoter programs as a strategy for promoting health care to migrant and seasonal farmworker children. However, the ENS program and other similar programs developed for improving the health of migrant and seasonal farmworker children

have stimulated community awareness of health care issues and empowered the migrant and seasonal farmworkers.