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Health risk behavior in foster youth

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Health Risk Behavior in Foster Youth

by

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Dedication and Acknowledgments Page

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Abstract

Problem: There are disproportionately high rates of morbidity and mortality in foster adolescents. Health risk behavior in adolescents accounts for more than half the morbidity and mortality in this age group. Risk behaviors are not well defined in foster youth.

Methods: Sixteen adolescents in foster care were interviewed using the Child Health and Illness Profile-Adolescent Edition (CHIP-AE); descriptive statistics, t-tests, and Pearson correlations were used.

Findings: In individual risks, these foster youth were in better health than a CHIP-AE Standardized Sample population. In threats to achievement they were in poorer health than the CHIP-AE Standardized Sample population. Younger adolescents in the study sample had better health than older youth. Reduced cost school lunch correlated with improved health risk behavior, and poorer health behavior with a history of physical abuse.

Conclusions: These preliminary results point to potential behavioral areas of strength and vulnerability in foster youth. Specific vulnerabilities include relationships between teachers and foster youth, difficulty with school work, and the presence of peers with negative health behaviors.

Problem

This small, descriptive study focused on potential areas of strength and vulnerability in an urban foster youth population. The primary purpose of this preliminary study was to describe health risk behaviors of foster youth in the San Francisco Bay Area with a standardized adolescent population sample from the Child Health and Illness Profile- Adolescent Edition (CHIP-AE) instrument. Secondarily, a goal of this research was to examine health risk behaviors within the group of foster youth for various demographic characteristics.

This paper will review the state of foster youth and literature on foster youth health risk behavior. The Causal Model of Adolescent Risk-taking Behavior will be used to underpin our understanding of health risk behavior in this population of foster youth. The study design and measures will be reviewed, and the preliminary findings on three domains of risk will be discussed. When extended, this research will help to further guide nursing interventions and clinical practices with the foster youth population.

Background and Significance

Adolescents[1] in foster care have a higher incidence of poor health status, including a higher prevalence of acute conditions, chronic illnesses, and poor nutritional status, than non-foster youth (Schor, 1982). More than 50% of morbidity and mortality in adolescence is attributable to health risk behaviors[2] that lead to negative health outcomes. Risk behaviors that are directly health-damaging include substance use and abuse, risky sexual practices, and accidents involving vehicles (Irwin, Burg, & Cart, 2002).

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[1] Adolescents and youth are used interchangeably and include ages 11-17 years old.
[2] Risk-taking behaviors are defined as behaviors and actions that may result in a risk to the individual.

Adolescents in Foster Care

An estimated 41% of the 110,000 children in the California foster care[3] system are adolescents, and approximately 30% of the national foster care population is between the ages of 11 and 17 (*State Agency Survey*, 1998; U. S. Department of Health and Human Services, 2002). Youth are removed from their biological families for a variety of mandated reasons. Carpenter, Clyman, Davidson, and Steiner (1999) reported on the various reasons that youth were placed out of the home, including: physical abuse (12-25%), neglect (50-75%), sexual abuse (2-9%), abandonment (9-35%), and parents who were incarcerated or unable to provide care (15 to 30%) (Carpenter, Clyman, Davidson, & Seinger, 2001).

Rates of neglect in families increased four-fold if the parent abused drugs or alcohol, and physical abuse rates increased three-fold if these substances were used (Jaudes & Voohis, 1995). In a survey of United States social service agencies in 1998, 88% of the states named substance abuse and poverty as the top two problems of families referred to Child Protective Service (CPS) (*Current Trends in Child Abuse Reporting and Fatalities: The results of the 1997 annual 50 state survey, working paper number 808*, 1999). Nationally, it was estimated that between 40-80% of CPS families had substance problems (Young & Gardner, 1998). Unemployment, poverty, minority ethnicity, and having a single parent have all been identified as characteristics associated with an increased risk for out-of-home placement of children and youth (Gottesman, 2001).

The type of placement also directly impacts a young person's experience in foster care. It is important to note that group home environments differ significantly from other

[3] Foster care included any out-of-home placement for the youth, including: traditional foster families, group homes, relative placements (termed kinship care), and residential treatment.

foster care settings. The youth in these settings may have been placed there due to "significant treatment needs" such as behavioral or mental health difficulties (LAO, 2005). Adolescents are commonly placed in group home settings after multiple "failing" of placements in other foster care settings. It offers intensive services and is more than three times the cost of a traditional foster family placement. Levels and sizes of these facilities vary, from relatively low structure to locked facilities with mandatory treatment programs (LAO, 2005). Youth placed into group home settings usually have more risk-taking behavior (Altshuler & Poertner, 2002). Due to their increased risk this group is particularly important to include when examining health risk behavior in foster youth .

Access to health care for foster youth is becoming increasingly inconsistent and sporadic. Studies have shown that even if a full exam was completed on a foster child upon intake into the foster care system, most appropriate follow up care did not occur. Inadequate insurance, low reimbursement rates, and managed care logistical mazes often result in frequent gaps in insurance coverage (Kools & Kennedy, 2003). The United States General Accounting Office found that 12% of children in foster care received no regular health care and that 34% had not been immunized (GAO, 1995). Additionally, young people in kinship care have been found to be less likely than those in traditional foster care to receive health care (GAO, 1995). Community adolescents typically have well-teen exams or sports physicals where discussion and assessment of health behaviors would occur. With youth in foster care, often a different provider examines the foster youth after each placement change, and acute health care issues dominate (Kools & Kennedy, 2003).

Adolescent health risk behaviors that have shown an improving trend in the

national population over the last 10 years include injury-related behavior and unsafe sexual behavior. Health risk behaviors that have stayed the same include poor nutrition, inadequate physical activity, and tobacco use. Areas of increasing health risk behavior are illicit drug use, alcohol use, and violence (homicide and violent crime). Health risk behaviors have been consistent across all racial groups and have led to morbidity in all systems of the body (Irwin et al., 2002).

Twenty-eight percent of youth in the community population actively engage in multiple health risk behaviors, while 72% engage in one health risk behavior or do not engage in any risk-related behaviors (Irwin et al., 2002). Given both the prevalence of health risk behavior in adolescents and the high rates of morbidity and mortality in foster adolescents compared with the adolescent population that does not experience foster care, there is a critical need to identify risk behavior in foster youth. A goal of this study was to examine risk behaviors that were addressed by the risk domain of the CHIP-AE. The CHIP-AE assessed individual risk activity such as vehicle use, behavior that threatens achievement such as school failure, and involvement with peers who engage in risky behaviors. Describing the health risk behaviors of this vulnerable group will help guide interventions to improve foster youth health and will increase understanding of the role of risk in the health of these youth.

Foster Youth Health Risk Behavior Literature

Literature directly relevant to foster youth health risk behavior was reviewed using PubMed and PsycINFO databases. Foster youth studies included research on sexual risk behavior and their antecedent factors, predictors of risk behavior, behavioral health

outcomes in youth reunited with family, and risk behaviors in youth residing in group home settings.

In a cross-sectional retrospective study of women who had participated in the National Survey of Family Growth (n=10,847) information regarding their out of home placement histories and sexual behaviors was reviewed. Eighty-nine of these women had spent some time in foster care; 513 of them had been in kinship care at least once. Women in foster care had their first pregnancy at a younger age by 21.6 months (M=19.2 years) and more sexual partners (74.7% had more than 3 partners) than the non-foster population (62.5% had more than 3 partners). Women who had a history of kinship care had a 12-month earlier age of sexual debut (M=16.4years) compared with the non-foster population (M=17.4 years) and a younger age of first conception by 22.8 months (M=19.1 years) compared to the non-foster care women (M=21 years) (Carpenter et al., 2001).

Taussing completed a six-year longitudinal prospective study on 110 children ages 7-12 years old placed in foster care to evaluate protective and vulnerability factors in risk behavior of maltreated foster youth. Significant correlations ($p \leq .05$) were found for several variables. Age was positively correlated with substance use, sexual behavior, and overall risk behaviors. A history of physical abuse or neglect predicted more delinquency and substance use. Parent and teacher support was negatively correlated with sexual behavior, while classmate support was negatively correlated with self-destructive behaviors. Statistically significant bivariate predictors of risk behaviors ($p \leq .05$) included social acceptance being positively associated with substance use and sexual behavior, whereas physical appearance was found to be negatively associated with sexual

behaviors. This study begins to illuminate the risk behavior of early adolescents in foster care (Taussig, 2002).

Another longitudinal analysis derived from the same population of foster youth in Southern California examined behavioral health outcomes in children who were reunified with their families compared to those who remained in foster care. Results from this sample demonstrated that the reunified teens had a higher incidence ($p \leq .05$) of self-destructive behavior, substance use, school drop-out rates, low grades, ticket and arrest rates, internal behavior problems, and overall risk behaviors. The two groups of young people did not differ in sexual behavior, externalizing behavior, pregnancy, or school suspensions. Research findings indicate that possible reasons for these findings include: high rates of re-abuse and neglect among children who returned home, increased stressors of reuniting, and differences between biological and foster parents in financial or other resources (Taussig, Clyman, & Landsverk, 2001).

Altshuler & Poertner (2002) used the Child Health and Illness Profile-Adolescent Edition (CHIP-AE) instrument to assess group home foster youth. Individual risks such as smoking, illegal substance use, safety practices, and sexual activity were found to be higher than the CHIP-AE Standardized Sample ($N= 47$, $M=23.75$, $t=5.00$) with a significance of $p<.01$. The behavioral threats to achievement such as lying, cheating, stealing, disobeying at school, and violent behavior were also higher ($N= 59$, $M=22.12$, $t=2.70$). Finally, youth in these group homes had more peers with risky behaviors ($N=60$, $M=27.65$, $t=5.24$) (Altshuler & Poertner, 2002).

These studies have all found significant trends in specific risk-taking behaviors of children who spent some time in foster care. Although varying in their generalizability,

study designs, and populations, a pattern of increased risk-taking in the foster population has been documented with this research. These studies have included younger children or excluded important foster care settings such as group homes. The goal of this descriptive study was to identify specific health risk behavior exclusively in adolescents living in diverse foster care settings.

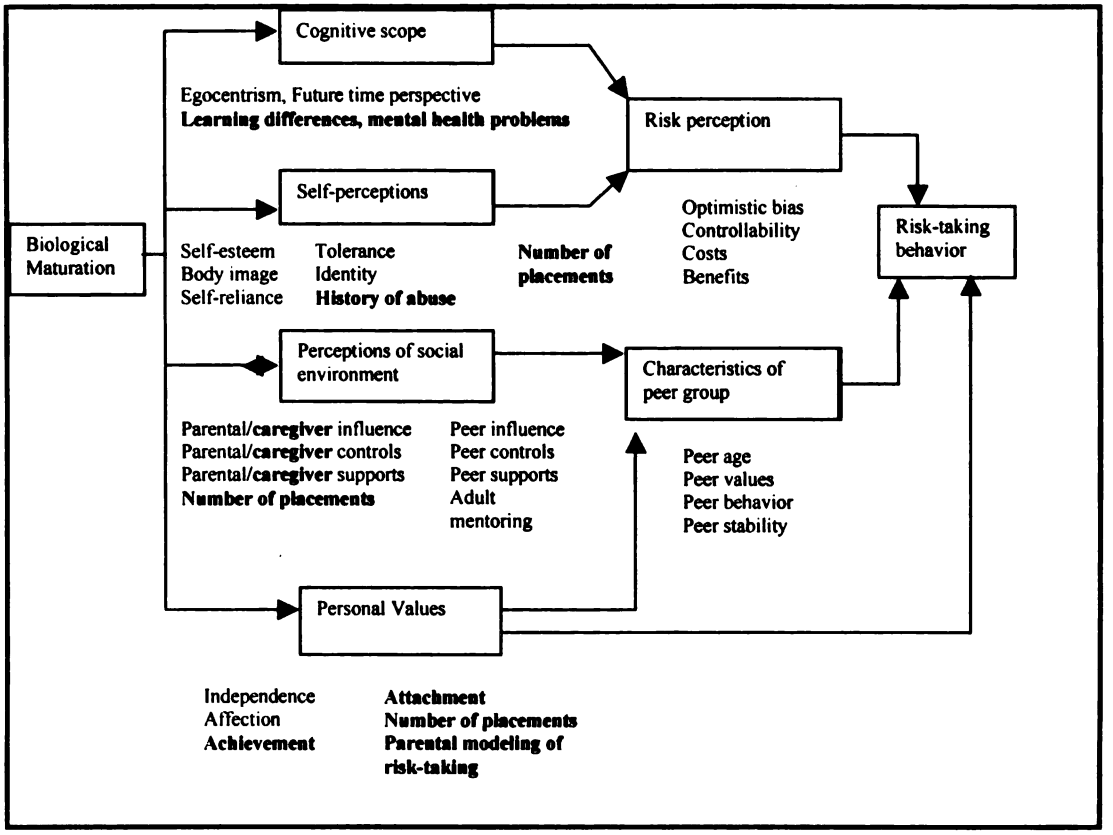
Causal Model of Adolescent Risk-taking Behavior:

This research did not test a model nor did it create a new model for review. Since this research was examining health risk behavior in adolescents it was important to frame it within the context of a model of adolescent risk behavior. Irwin and Millstein have proposed a theory of adolescent risk-taking behavior which addresses the normal developmental benefits of taking risks and the biological, psychological, and social factors that influence the probability of negative health risk-taking behavior. Their model focuses on the behaviors of substance use/abuse, behaviors that are associated with accidents and sexual activity. The timing of physical maturation combined with the cognitive scope, self-perceptions, perceptions of the social environment and personal values all factor into a youth's risk-taking behaviors (Irwin & Millstein, 1986).

According to the Causal Model of Adolescent Risk-taking Behavior, cognitive scope and self-perception directly contribute to the risk perception of an adolescent. Risk perception is further influenced by a youth's optimistic bias and perceptions of controllability, costs and benefits. The cognitive scope of an adolescent is limited to the developmental level of the adolescent. Ego-centrism dominates early adolescence, whereas in middle adolescence there is a transition to future time perspectives, when youth can abstractly consider various outcomes. Younger adolescents are unable to

understand the possibility of negative outcomes and often have a strong sense of being "special and unique" (Irwin & Millstein, 1986). Both of these cognitive traits contribute greatly to negative health risk behaviors (Irwin & Millstein, 1986). The cognitive scope of foster youth may not be as developed or prepared to perceive risks due to high rates of academic failure, learning differences and mental health problems (Kools & Kennedy, 2003).

Figure 1: Adapted Causal Model of Adolescent Risk-taking Behavior in Foster Youth (Irwin & Millstein, 1986):



The adaptation of the Causal Model of Adolescent Risk-taking Behavior to address specific factors affecting foster youth included several additions. In Figure 1 these factors that uniquely effect foster youth are incorporated (in bold) into Irwin and Milstein's Model. Learning differences and mental health problems were added to

elements that contribute to cognitive scope. A history of abuse and number of placements were included in factors affecting self-perception. The number of placements was an extra factor in contributing to perceptions of social environment. The addition of attachment, number of placements, parental modeling of risk-taking, and achievement were new to the development of personal values segment of the model. Finally, the use of the term "caregiver" to supplement "parental" was added.

The self-perception of a youth in the Causal Model of Adolescent Risk-taking Behavior is guided by self-esteem, body image, self-reliance, tolerance, identity, and social relationships (Irwin & Millstein, 1986). Reasons for placement for these youth may have direct impact on these elements of self-perception, particularly if they have suffered from abuse. In addition to their past, foster youth who are repeatedly transferred to new caregivers may have difficulty maintaining relationships, identity, or a sense of stability. The longer a foster youth remains in foster care, the greater number of placements he or she will experience. Within a span of four years, 61% of foster children will have three or more placements. The number of placements also increases for those youth with behavioral and emotional problems, those who were removed from home at a young age, and those with a parental history of substance abuse (Kools & Kennedy, 2003).

Irwin and Millstein's Causal Model of Adolescent Risk-taking Behavior attributes perceptions of social environment and personal values as the influencing forces of a peer group's characteristics. The peer group qualities are comprised of peer age, values, and behavior. Perceptions of social environment include influences from parents and peers, supports of parents and peers, and controls of parents and peers (Irwin & Millstein, 1986). The foster youth is at a distinct disadvantage in this area since parental influences

may have been unpredictable or negative. Some parents of foster youth have modeled serious risk-taking behavior such as substance abuse, criminal activity or consequences of health risk behavior such as early pregnancy and early parenting (Kools & Kennedy, 2003). In addition, the number of placements a youth experiences contributes to instability in their social environment by constantly shifting caregivers and peers.

The final contributors to the adolescent peer group in the Causal Model of Adolescent Risk-taking Behavior are the qualities of the personal values and abilities of the youth, namely: independence, affection, and achievement (Irwin & Millstein, 1986). Foster youth may be hindered in the development of their personal values. These youth often had negative experiences with affection and attachment, in addition to lacking support to achieve in academic, athletic, or creative pursuits. Academic success is particularly difficult for foster youth, in part due to the previously mentioned learning and mental health problems, and also the educational instability due to multiple placement transitions. In addition, the parental modeling of risk-taking and number of placements could impact these youth in their own formation of values (Kools & Kennedy, 2003).

Methods

Sample and Setting

The health risk behaviors of foster adolescents were examined using secondary data analysis from the "Improving Health and Development of Foster Adolescents" Study funded by the National Institute of Nursing Research, Principal Investigator Susan Kools, PhD. This five-year randomized control trial in process is measuring the effect of a nurse intervention to promote the health of adolescents in foster care with their newly assigned Court-Appointed Special Advocates (CASAs). Subjects from this urban population were

recruited from the San Francisco County CASA program. Adolescents were eligible for the study if they were 11-16 years old at the time of recruitment. Those with significant developmental delay were excluded. The sample for this descriptive study included all participants in the larger study who completed baseline CHIP-AE forms collected through February 2005. This will be expanded and data reanalyzed and interpreted with submission for publication.

Instruments

The Demographics form collected fundamental information such as the date of interview, birth date of foster youth, gender, and race/ethnicity. Placement history was also collected, including age at first placement, total number of placements (including the current one), and total length of time in the foster care system. Identified reasons for first placement were listed. The CASA also described the type of current placement. This data was useful in examining correlations between the demographic characteristics and the risk behavior in this sample of foster youth.

The Child Health and Illness Profile-Adolescent Edition (CHIP-AE) is a self-administered questionnaire that is designed to assess the health of youth ages 11-17. The extensive CHIP-AE Standardized Sample included both school samples (N=865) and acute and chronic illness samples (N=144). This initial sample population for the CHIP-AE was living in the urban region in and around Baltimore, Maryland. Since this initial test population, the CHIP-AE has also been extensively tested in rural populations in the Midwest. Foster populations were not specifically identified, but would be included in these settings. The CHIP-AE covers many facets of health and has been reviewed as one of the most useful in assessing children with special health care needs due to the depth

and range of health problems covered by the instrument (Kozinetz et al., 1999). Additionally, the risk domain of the CHIP-AE allowed this study to examine specific risk-taking behaviors of foster youth, compare these youth with a CHIP-AE Standardized Sample population, and compare risky behaviors within the group of foster youth (Riley, Forrest et al., 1998).

The extensive testing has resulted in good psychometric properties for the CHIP-AE including: test-re-test reliability of 0.49-0.87, internal consistency domain alphas of 0.59-0.90 and validity for criteria, convergent and discriminant factors (Riley, Forrest et al., 1998; Starfield & Riley, 1996). A modification that was made to the CHIP-AE for this study was to clarify the term "family" by adding "foster" to the term "family" in seven items and one instruction.

The CHIP-AE is a self-report measure for youth to describe their own perceptions of their health. In testing for the CHIP-AE it was consistently found that adolescents were more accurate, reliable, and valid in reporting their own health than the proxy reports of caregivers or teachers. The measure includes six domains of health: discomfort, disorder, satisfaction with health, resilience, achievement, and risks. This study examined the domain of risk (Starfield et al., 1999).

The risk domain includes three sub-domains that will be included in this research. The first sub-domain is individual risks, which examines actions that endanger the individual health and development of the youth. An example of this type of individual risk assessment is a question such as: "How often did you wear a helmet when riding a bike?" (Starfield et al., 1999). The second sub-domain is termed threats to achievement, specifically "behaviors that can disrupt social development"(Riley, Green et al., 1998).

An example of this type of question includes: "How often have you disobeyed at school?" (Starfield et al., 1999). The final sub-domain in the risks domain is peer influences, which assesses peer risk-taking behaviors. An example of this type of peer assessment is: "How many of your friends would you say... smoke cigarettes?" (Starfield et al., 1999). This last domain of risk was assessing an adolescent's perception of their peer's health risk behavior, not the actual behavior itself. Research has found that adolescent's "misperceptions of the prevalence of risky behavior among peers may lead them to feel pressure to engage in activities that are much less common then they presume" (Dolcini & Adler, 1997).

CHIP-AE scores are normalized to an arbitrary mean of 20 and a standard deviation of five for all sub-domains and domains using the CHIP-AE Standardized Sample. The sub-domains of risk have a "more or less symmetrical distribution" (Starfield et al., 1999). A mean score less than 17 is categorized as poor health, a mean between 17 and 23 is average health, and above 23 is excellent health (Starfield et al., 1999).

Data Collection

The CHIP-AE was administered by a Research Assistant (RA) working on the study, who was also a registered nurse. Informed Consent was obtained from CASA volunteers, and Informed Assent was obtained from the youth. The instrument was read out loud to the foster youth to allow for all literacy levels. A demographics sheet was completed by the CASA to assess demographic characteristics of these foster youth. The RA's who collected and entered the data into the computer program were blind to group assignment for the intervention study.

The Committee on Human Research (CHR) at UCSF reviewed an expedited application on this secondary data analysis study on health risk behaviors in foster youth. No further contact or consent was required of the participants as these had been obtained in the original study.

Data Analysis

Data were entered into the database using SPSS 11.0 for Windows statistical package, SPSS Data Entry 3.0 product, and the CHIP-AE data entry software. The data were double entered and files matched to ensure accurate data entry. Scoring was completed using the data-entry software of the CHIP-AE. Data were analyzed using descriptive statistics, specifically: means and standard deviations for the continuous variables, and frequencies and percentages for the categorical variables. Categorical variables included gender, ethnicity, reason for placement, and type of placement. Continuous variables included age at first placement, number of placements, and length of time in foster care.

T-tests were used to compare risk subdomains and the domain of risk of the study population to the CHIP-AE Standardized Sample. Independent t-tests were used to examine differences within the foster youth group including gender, ethnicity, and stage of adolescent development[4]. Significances for the t-tests were compared with non-parametric Mann-Whitney tests. Pearson correlations were calculated with two-tailed significance, and included all risk sub-domains, years in foster care, number of placements, age at first placement, number of people in the home, and reason for placement. Frequencies were calculated for the subdomains of peer risk behavior, behavior that threatens achievement, and independent behavior risks.

[4] Developmental stages of adolescence include early (ages 10-13), middle (14-16), and late (17-21).

Findings

Sixteen foster youth participated in this study. Demographic characteristics of these foster youth included: nine females (mean age 12.9 years old, range of 11-15), seven males (mean age 13.7 years old, range of 13-15 years old), 12 African Americans, three Latinos, and one Caucasian. The average age of first placement was 5.52 years old, and ranged from placement at birth to new to foster care as a 14 year-old. The average length of time in foster care was 5.69 years, ranging from less than a year to 14 years. These youth had an average of 3.25 placements but ranged from having one placement since birth to having 12 placements. Types of placement ranged from 43.8% (n=7) in relative or kinship placement, 31.3% (n=5) in group homes, 18.8% (n=3) with foster families, and 6.3% (n=1) in the reunification process (under social services guardianship but living with a biological parent). These young people had experienced multiple reasons for placement according the their CASA's report, including: physical abuse (31.3%, n=5), emotional abuse (25%, n=4), sexual abuse (12.5%, n=2), neglect/abandonment (62.5%, n=10), parental mental illness (31.3%, n=5), parental incarceration (31.3%, n=5), parental substance use (81.3%, n=13), and parental death (6.3%, n=1).

A t-test was calculated for each subdomain and the overall domain of risk, compared with the CHIP-AE Standardized Sample. Results are shown on Table 1. The overall domain of risk (M=17.60, t=-1.28) was not significantly different from the CHIP-AE Standardized Sample population. Significant differences were found in two sub-domains: individual risk and threats to achievement. The individual risks subdomain (M=24.53, t=2.99, $p \leq 0.01$) had 95% confidence intervals and classified the youth as in

excellent health for these behaviors; that is, having low individual risks. In contrast, the threats to achievement sub-domain score (M=14.36, t=-3.22, p≤0.01), also with a 95% confidence interval, indicated a poor level of health behavior, significantly below the CHIP-AE Standardized Sample.

Table 1. **T-Test, Means, and Standard Deviations of Sub-domain and Domain Scale Scores of Foster Youth Compared with CHIP-AE Standardized Sample**

Measure	Foster Youth			CHIP-AE Standardized Sample			
	N	Mean	SD	n	mean	SD	t
Sub-domains:							
Individual Risks	16	24.53	6.06	860	20	5	2.99*
Threats to Achievement	16	14.36	7.01	840	20	5	3.22*
Peer Influences	16	16.82	8.69	848	20	5	-1.47
Domain:						5	
Risks	16	17.60	7.50	848	20	5	-1.28

Note: * p≤0.01

Several independent sample t-tests were calculated for various groups within the foster youth population on Table 2. A significant difference was found for the individual risk subdomain between early (M=27.36) and middle (M=20.88) adolescent development (t=2.45, p≤0.05). This distinction measured early adolescents in excellent health and middle adolescents in average health. There were no significant differences found related to gender or ethnicity.

Correlations were examined between various demographic characteristics of these foster youth. A significant correlation was found between reduced cost school lunches and individual risk subdomain score (r=.852, p=.001). In addition, a correlation between a history of physical abuse and lowered threats to achievement score was measured (r= -.662, p= .005). No correlations were found between other reasons for placement and risk behavior (including parent mental illness, parental substance use, parental incarceration,

emotional abuse, sexual abuse) or placement history (including number of placements, age at first placement, number of people living in the home), or other services (welfare checks, food stamps).

***Table 2*: Independent T-Test for Differences in Risk Behavior of Foster Youth**

Foster Youth Population	N	***Domain:*** *Risks*	*Individual Risks*	*Threats to Achievement*	*Peer Influences*
Adolescent Development Stage:					
Early (ages 11-13)	9	19.75	27.36*	14.64	19.49
Middle (ages 14-16)	7	14.84	20.88*	14.01	13.40
Gender:					
Male	7	16.71	15.65	21.46	12.70
Female	9	16.91	19.16	26.92	15.66
Ethnicity:					
African American	12	19.12	25.60	15.93	17.79
Latino or Caucasian	4	13.05	21.32	9.69	13.93

Note: *95% confidence interval, $p \leq 0.05$

The frequencies of the behavior of foster peers (Appendix A), foster youth behavior that threatens achievement (Appendix B) and individual risk behavior of foster youth (Appendix C) were examined. Foster youth were perceived that their peers were: smoking cigarettes (56.2%, n=9), drinking alcohol (50%, n=8), smoking marijuana (68.7%, n= 11), and having sex (68.7%, n=11). Foster youth reported they had trouble concentrating in school (75%, n=12), had trouble getting school work done (56.2%, n=9), had trouble getting along with a teacher (50%, n=8), and had disobeyed at school (68.7%, n=11). Half of these foster youth had been suspended or expelled from school within the last two years. These foster adolescents reported they argued a lot (68.7%, n=11), stole (43.7%, n=7), carried a weapon (37.5%, n=6), had run away (43.7%, n=7), or threatened to hurt someone (68.7%, n=11). All foster youth in the sample who had been sexually active (25%, n=4) were using condoms (50%, n=2) or the pill or depo-provera (50%,

n=2). Seventy-five percent of these youth had opposite sex partners. The one foster youth who reported same sex partners had four or more lifetime partners, while the youth with opposite sex partners had three or fewer lifetime partners.

Conclusions

Despite the small sample size of the study group, some significant differences were identified both within the foster sample and between foster youth and the CHIP-AE Standardized Sample community population. The 'excellent' health rating of foster youth in their individual risk behavior was an encouraging finding. Within the developmental stages of these youth, however, the younger teens were the group with low health risk behavior, and the middle adolescent group had the same mean as the CHIP-AE Standardized Sample population, or average health.

This finding could be explained by a number of factors. The small sample size may present an overly optimistic picture, capturing youth who were in better health than most foster youth. However, this is unlikely since all of these youth were in the CASA system, to which they were referred if they were having problems or needed extra support. Many of the questions in this section of the CHIP-AE asked about vehicle use including motorcycles and cars. If the youth did not have access to these vehicles, their scores would reflect a lack of means to the behavior not necessarily protective decisions on their part.

The difference between the older adolescents having more individual risk-taking behavior and the younger teens participating in less risk-taking behavior is what one would expect developmentally, but remains a positive finding for each age interviewed. This study did not include any 16-or 17-year old foster youth, a demographic in which

one would expect to find more health risk behavior (Maggs, Almeida, & Galambos, 1995). This age difference could account for the difference in our study results from the health risk findings in the Altshuler & Poertner (2002) group home study using the CHIP-AE, where the average age was 16. Additionally, we have included youth from multiple placements, not only the higher risk group home foster youth. The Causal Model of Adolescent Risk-taking Behavior expressly defines risk-taking behavior as a function of biological maturation. Our small group was young and would have more of the egocentric point of view, which may have promoted their sense of identity, self-esteem and self-reliance, and decreased risk-taking. In addition, all of our participants had an involved mentor, their CASA, which may have affected their perception of their social environment and also reduced their risk-taking (Irwin & Millstein, 1986).

In contrast to the independent risk factor findings, these youth have reported significant behavior that threatened achievement. The overwhelming majority of these behaviors centered on school behavior. This study population had difficulty concentrating, completing work, following rules, and working with their teachers. Half of these young people had been suspended or expelled. This finding was slightly lower than what had been found in another study of foster youth where 73% had been suspended and 16% expelled. (McMillen, Auslander, Elze, White, & Thompson, 2003). Both of these rates are high when compared to another study of community 'high risk' youth that found a suspension rate of 24% (McCord, Klein, Foy, & Fothergill, 1993).

Repeated suspension and expulsion has been found to be associated with higher dropout rates (Martin, Levin, & Saunders, 2000). Higher incidence of school failure, negative peer interactions, conduct disorders, impulsivity and aggression are common

results of the trauma and disruption in the lives of foster youth, which could be contributing to this low score (Kools & Kennedy, 2003). These difficulties directly impact opportunities to experience accomplishments, and success may be restricted or nonexistent (Kools & Kennedy, 2003). These limited experiences with mastering tasks or behavior directly impacts personal values and abilities of the youth, a component of the Causal Model of Adolescent Risk-taking Behavior (Irwin & Millstein, 1986).

Again, due to our small sample size, this health risk finding could be a reflection only of the selected foster youth. The study youth were referred to CASA due to problems that were noted by caregivers, social workers, or judges. Some of these difficulties were risk behaviors; therefore these youth may have had poorer health than the greater San Francisco foster youth population. A larger study sample would increase generalizability, particularly if it included foster youth not in the CASA program.

The frequent movement of youth in the foster system could contribute to health risk behavior. The average number of placements in this foster youth group was 3.25, with a range of one to 12 placements. These foster youth have remained "in the system" for an average of 5.69 years, some from birth and others who were new to the "system" in middle adolescence. Time and movement within the foster care system can result in exposures to numerous individuals with varying health habits and beliefs. The number of placements could affect self-perception, perceptions of social environment, and the personal values components of the Causal Model of Adolescent Risk-taking Behavior. Disruptions, inconsistencies, and unpredictable transitions could impair the youth's ability to perceive themselves, their world, and could affect their development of personal

values. These three areas of the model lead directly to the perception of risk and the choice of peer group, which in turn could increase risk-taking behavior.

Many youth are in foster care in part due to parental health conditions such as mental illness (31.3%) or substance abuse (81.3%). In addition to parental influence, most of the peers of these adolescents were engaging in multiple health risk behaviors. The characteristics of the peer group are an essential part of the Causal Model of Adolescent Risk-taking Behavior. Their age, values, behavior, and stability contribute to risk-taking behavior (Irwin & Millstein, 1986). In addition, we know that an adolescent's perception of their peers' health risk behavior is associated with the young person engaging in that behavior (Dolcini & Adler, 1997).

As discussed earlier, the movement of youth in the foster system creates many challenges for these young people. These challenges include having negative experiences with affection and attachment due to parental influences and the unpredictable and frequent removal from caregivers and friends. This again impacts the majority of identified areas contributing to behavior in the Causal Model of Adolescent Risk-Taking Behavior. Foster youth often do not have the support to achieve in any setting: academic, athletic, or creative. Their high rates of learning differences, mental health problems, and again, multiple transitions to different schools, increases the difficulty they may have with success in school and may increase their health risk behavior (Kools & Kennedy, 2003).

The correlation between improved individual risk subdomain and reduced cost school lunches may be a reflection of the benefits of being "tied in" to the system and receiving adequate wrap-around services, including school lunch. This may be a proxy

measure of adult involvement and advocacy since to be enrolled in a school lunch plan an adult must complete the necessary paperwork for the youth. In the Causal Model of Adolescent Risk-taking Behavior the presence of an adult mentor or supportive caregiver influences the perception of the social environment, an area that could contribute to decreased risk behavior (Irwin & Millstein, 1986).

The correlation between a history of physical abuse and poorer threats to achievement score was also measured, and is similar to the finding in the Taussig study discussed previously, that a history of physical abuse was linked to greater delinquency in adolescence (Taussig, 2002). Children who have suffered from physical abuse have been found to have behaviors such as: disobeying; lying; destroying others' belongings; running away from home; and poor school achievement (Youssef, Attia, & Kamel, 1998). The history of abuse can also be incorporated into the Causal Model of Adolescent Risk-taking Behavior, for it can impact self-perception, an element that contributes to risk perception and risk-taking behavior (Irwin & Millstein, 1986).

The major limitation of this study was the small sample size. Despite this limitation, this study was able to find significant differences between these young people in foster care and the CHIP-AE Standardized Sample population, and between developmental stages for one type of risk behavior within this foster youth group. This study was not able to achieve significance in the other areas of risk behavior, nor other differences observed between the various groups within the participating foster population. A larger study sample is required to completely investigate the differences we observed between males and females, different ethnicities, and to identify correlations between demographic characteristics and risk behavior.

Despite this study's limitations, the results give us reason to be optimistic that there may be positive aspects of health in this population. These strengths could be promoted to reduce later risk behavior. These results point us to vulnerabilities of these young people, specifically in relationships between teachers and foster youth, difficulty with school work, and the presence of peers with negative health behaviors. These young people have experienced a great deal of stress and hardship, and have endured a foster care system that makes maintaining positive health behavior difficult at best.

Nurses working in collaboration with foster and biological families as well as social agencies are in a unique position to educate families about risk behaviors and promote risk reduction through education and referral to community resources. Nursing roles in the community that interact with foster youth include public health outreach programs, settings such as schools and community clinics, juvenile justice systems, and in some counties, foster care nurses (California Department of Health Services, 1999). Nurses can collaborate with other professionals to promote teacher-youth relationships, advocate for school-based clinics, and collaborate with CASAs to ensure that schools provide the positive support these youth require. One study found that students using a school-based clinic "were significantly more likely to stay in school, and to graduate or be promoted than students who were not registered for the clinic" despite having the same suspension and absence rates as non-school clinic users (McCord et al., 1993). Promotion of positive youth development organizations and membership for foster youth in these organizations could introduce foster youth to other peers who are making positive health behavior decisions. Care providers can also be sensitive to the lack of continuity in care and make concerted efforts to provide care in an appropriate way, such

as extending visit times for youth in the foster care system, having a designated clinician working with all foster youth, and making an extra effort to stay in contact with youth through multiple transitions. More research on the health and behavior of foster adolescents would guide clinician practice and social policy for the better protection and promotion of the health of our foster youth.

Appendix A: Peer Risk Behavior Frequency

Peer Risk Behavior	None (%)	Some (%)	Most (%)	All (%)
Smoke cigarettes	43.8	43.8	6.3	6.3
Drink Alcohol	50.0	31.3	6.3	12.5
Smoke Marijuana	31.3	31.3	6.3	31.3
Use Other Drugs	93.8	0	0	6.3
Sexual Intercourse	31.3	31.3	18.8	18.8

Appendix B: Frequencies of Lifetime Behavior That Threatens Achievement

Behavior that Threatens Achievement	Never (%)	More than a year ago (%)	In the past year (%)	In the past month (%)	In the past week (%)
Carried a weapon for protection	62.5	n/a	6.3	18.8	12.5
Belonged to a gang	87.5	6.3	6.3	0	0
Drank hard liquor, mixed drinks	87.5	0	0	6.3	6.3
Ran away from home	56.3	12.5	12.5	6.3	12.5
Threatened to hurt someone	31.3	12.5	0	18.8	37.5
Physically attacked someone	56.3	6.3	25	12.5	0
Stole something worth > $10	56.3	18.8	12.5	6.3	6.3
Destroyed something belonging to someone else	43.8	6.3	6.3	31.3	12.5

Frequencies of Recent Behavior That Threatens Achievement

Behavior that Threatens achievement	0 days (%)	1-3 days (%)	4-6 days (%)	7-14 days (%)	15-28 days (%)
Lie or cheat	43.8	12.5	18.8	n/a	25
Argue a lot	31.8	18.8	25	n/a	6.3
Hang around with others who get into trouble	37.5	25	12.5	n/a	25
Disobey at school	31.3	31.3	18.8	6.3	12.5
Trouble getting along with teacher	50	6.3	6.3	6.3	31.3
Trouble concentrating in school	25.0	25.0	18.8	18.8	12.5
Trouble getting school work done	43.8	6.3	12.5	12.5	25.0

Appendix C: Frequencies of Independent Behavior Risks

Independent Behavior Risks	Never (%)	More than a year ago (%)	In the past year (%)	In the past month (%)	In the past week (%)
Drank beer, wine, wine coolers	56.3	18.8	0	12.5	12.5
Smoked cigarettes	81.3	6.3	0	0	12.5
Drank 5 or more drinks in a row	93.8	6.3	0	0	0
Rode a motorbike	93.8	0	0	6.3	0
Wore helmet while riding motorbike	100	0	0	0	0
Drove a car	68.8	12.5	6.3	12.5	0
Used drugs, alcohol before driving car, motorbike	100	0	0	0	0
Rode a bike	6.3	18.8	37.5	25.0	12.5
Wore helmet when riding bike	56.3	18.8	12.5	12.5	0
Used marijuana	56.3	6.3	6.3	12.5	18.8
Injected steroids	100	0	0	0	0
Used inhalants	93.8	0	6.3	0	0
Used cocaine	100	0	0	0	0
Used other illegal drug	100	0	0	0	0

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