

STATISTICAL TECHNIQUE IN REVIEW

Chi Square (χ^2) is an inferential statistical test used to examine differences among groups with variables measured at the nominal level. χ^2 compares the frequencies that are observed with the frequencies that were expected. χ^2 calculations are compared with values in an χ^2 table. If the result is $>$ or $\geq$ to the value in the table, significant differences exist. If values are statistically significant, the null hypothesis is rejected (Burns & Grove, 2005). These results indicate that the differences are an actual reflection of reality and not due to random sampling error. If more than two groups are being examined, χ^2 does not determine where the differences lie; it only determines that a statistically significant difference exists. A post hoc analysis will determine the location of the difference. χ^2 is one of the weaker statistical tests used, and results are usually only reported if statistically significant values are found.

RESEARCH ARTICLE

■ **Source:** Salsberry, P. J. (2003). Why are some children still uninsured? *Journal of Pediatric Health Care*, 17(1), 32-8.

Introduction

In an effort to understand why children remain uninsured, Salsberry (2003) interviewed low-income parents in Ohio and compared children with and without insurance. This cross-sectional survey design included a sample of 392 low-income parents. Subjects were chosen from two groups, those with a Medicaid history ($n = 305$) and those without a Medicaid history ($n = 120$). Those without a Medicaid history were chosen randomly. Results indicated specific profiles for different levels of insurance. These levels of insurance include uninsured, Medicaid-enrolled, and privately insured. "Statistically significant differences were found across the three groups in income, working status of the adults, education, health status of the adult and child, and in the utilization of health care" (Salsberry, 2003, p. 38). "Parents of the uninsured children were less knowledgeable about the application process. . . . Parents of uninsured children face multiple life challenges that may interfere with the enrollment process. Health problems, work schedules, and lack of knowledge may all need to be addressed before we can decrease the number of uninsured children in our nation" (Salsberry, 2003, p. 32).

Relevant Study Results

In Table 1, Salsberry (2003) presents the demographic characteristics of the sample by level of insurance (uninsured, Medicaid-enrolled, and privately insured).

TABLE 1 ■ Demographics of the Sample*

	Uninsured (N = 62)	Medicaid (N = 219)	Privately Insured (N = 111)	χ^2
Gender—% female	34 (55%)	112 (51%)	55 (50%)	2.92
Race of child				6.45
White	19 (31%)	80 (37%)	53 (48%)	
African American	35 (56%)	118 (54%)	50 (45%)	
Other	8 (13%)	21 (10%)	8 (7%)	
Education (of adult)	0	11 (5%)	1	24.60 [†]
Less than 9			15 (14%)	
10, 11, 12	14 (23%)	66 (30%)	44 (40%)	
High school grad	30 (48%)	83 (38%)	51 (46%)	
College or above	18 (29%)	59 (27%)		
Marital status (%)	18 (29%)	43 (20%)	49 (44%)	21.95 [‡]
Married/living with partner				
Living alone	44 (71%)	176 (80%)	62 (56%)	
Working (%)	41 (66%)	104 (47%)	85 (77%)	27.39 [§]
Full/part-time	21 (34%)	115 (53%)	26 (23%)	
Not employed outside the home				
No. in household				3.70
2	8 (13%)	38 (17%)	11 (10%)	
3	17 (27%)	51 (23%)	30 (27%)	
More than 3	37 (60%)	130 (60%)	70 (63%)	
Sample group				109.92 [§]
Applied	39 (63%)	219 (100%)	51 (46%)	
Non-applied	23 (23%)	0	60 (54%)	
Adult health status				6.78 [†]
Mean PCS	43.99	46.24	49.99	
Mean MCS	48.03	47.56	50.11	1.84
Mean household income	\$19,267	\$16,833	\$27,509	12.13 [§]

*Not all cells add to the noted totals, because of missing data. Percents determined on valid responses.

Note: Adult health status and mean household income were compared using ANOVA.

[†] $p \leq .05$.

[‡] $p \leq .001$.

[§]($\leq$) = Less than or equal to the value

Working (%) varied among different levels of insurance. For example, in the Full/part-time group, 66% of parents were uninsured, 47% received Medicaid, and 77% were privately insured, [χ^2 (2, $N = 392$) = 27.39, $p = .001$].

In the Not employed outside the home group, 34% were uninsured, 53% received Medicaid, and 23% received private insurance.

Salsberry, P. J. (2003). Why are some children still uninsured? *Journal of Pediatric Health Care*, 17(1), p. 34. Copyright © 2003, with permission from The National Association of Pediatric Nurse Practitioners.

Name: _____

Class: _____

Date: _____

■ EXERCISE 40 Questions to be Graded

1. According to the "Introduction," what categories were reported to be statistically significant?
2. In Table 1, is the No. in household reported as statistically significant among the three groups (uninsured, Medicaid, and privately insured)? Provide a rationale for your answer.
3. Should the null hypothesis for Marital Status (%) be rejected? Provide a rationale for your answer.
4. How many null hypotheses were rejected in the Salsberry (2003) study? Provide a rationale for your answer.
5. Does Marital Status or Education (of adults) have a greater statistically significant difference among the three groups (uninsured, Medicaid, or privately insured)? Provide a rationale for your answer.

6. Was there a significant difference in Working status for the three levels of insurance (uninsured, Medicaid-enrolled, and privately insured)? Provide a rationale for your answer.
7. State the null hypothesis for level of insurance and Gender-% female.
8. Should the null hypothesis for Question 7 be accepted or rejected? Provide a rationale for your answer.
9. In your own opinion, were the outcomes of this study what you expected?
10. In your own opinion, should the results of this study be generalized to other State Children's Health Insurance Programs (SCHIPs)? Provide a rationale for your answer.