

Utilization of Medical Services by Single-Parent and Two-Parent Families

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The purpose of this study was to examine the influence of family structure on the utilization of health care services. Data from the Family Health Utilization Survey, a six-month prospective study, showed that when confounders were controlled using a multiple regression model, being in a single-parent family was predictive of a statistically significant increase in overall utilization of ambulatory health care services. There were no differences between single-parent and two-parent families in rates of hospitalization or emergency room visits. There was a trend toward a higher rate for obtaining telephone advice by the single-parent families and a higher rate of after-hours care among the two-parent families. Single-parent families were also more likely to feel they needed care but did not obtain it. Differences that exist in the health care utilization patterns of single- and two-parent families should be considered in assessing health care needs of families.

Although the national divorce rate has leveled off, approximately 26 percent of households in the United States with children under the age of 18 years are headed by a single parent.¹

Twenty-three percent of all children live with one parent.² Previous research examining the influence of being in a single-parent family on the utilization of medical services has concentrated on either the adult—usually the female head of household—or the children, but not the entire family. A higher morbidity and mortality rate among single or divorced adults has been reported by several investigators.³⁻¹⁰ Physical morbidity, measured by the self-reporting of chronic illness, functional disability, and perceived health status, has been reported to be higher among single mothers.¹¹ One study showed a trend toward an increase in the number of illnesses, hospitalizations, and bed disability days and a reduction in self-reported health status by separated or divorced women as compared with married women.¹²

There have been few studies published on the utilization of health care services by members of single-parent families, and the available data are conflicting. Estimates from the 1977 National Medical Care and Expenditure Survey showed that compared with married women, divorced women had more physician visits.¹³ In a study of emergency room services comparing children from broken homes and on welfare with children from intact families, there were no differences in the number of visits to either private or public health facilities.¹⁴ When socioeconomic status was controlled, single-parent urban black mothers living alone with their children were found to have the lowest utilization of preventive health services.¹⁵ In a study of the influence of family structure on children's use of ambulatory physician services, children living with single parents were more likely to have physician visits.¹⁶ A review of studies on children in single-parent families in Britain suggested an increase in consultations with a general practitioner and in the rate of hospitalization.¹⁷ A study of a random sample of kindergarten through fifth grade children found no significant differences in utilization of ambulatory visits resulting from family structure when socioeconomic status and ethnicity were controlled.¹⁸ Large national studies on access and utilization of medical services have not reported data on the combined utilization of health care services by both the adult and children in a single-parent family.^{19,20} Insurance coverage, health reimbursement, and personnel policies regarding sick leave do not consider differences that may

Submitted, revised, November 30, 1988.

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exist in utilization patterns between single-parent and two-parent families, but instead treat these two groups in similar fashion. Before changing health care policies, a clear understanding of the utilization of health care services by single-parent and two parent-families is needed.

This study sought to determine whether (1) members of single-parent families with children 18 years old or younger utilize health care services more frequently than members of two-parent families, (2) children of single-parent families miss more days of school than children of two-parent families, (3) adults in the single-parent family miss more work days because of illness, (4) single-parent families utilize more after-hours care or have more telephone consultations with the physician than two-parent families, and (5) there are factors predictive of utilization among the single-parent families. A six-month prospective cohort study was conducted to answer these questions.

METHODS

This study was conducted using families enrolled in the Family Medical Care Center of the Department of Family and Community Medicine at the University of Missouri-Columbia (UM-C). Using a family registration form, a total of 803 families who had utilized the Family Medical Care Center in the year prior to the study and who had children 18 years old or younger were identified. These families, consisting of 257 single-parent (253 women and four men) and 546 two-parent families, were invited to participate in a six-month prospective study on how families use health care services.

An introductory and explanatory letter, initial questionnaire, and the first of six monthly utilization questionnaires were sent to the female parent and the four single-parent men. All participants were informed that information obtained would be confidential. Of this group, 90 single-parent families (35 percent) and 231 two-parent families (42 percent) agreed to participate for a six-month period.

The initial questionnaire obtained demographic information and family characteristics including race, marital status, age, number of children, number and relationship of adults living in the household, employment status and occupation of the parents, method of payment for health services, income, and education. Social support was examined by a single item measuring tangible supportive assistance in time of need.²¹ Self-perception of the respondents' health and the health of their children was measured using questions from the National Health Interview Survey.²⁰

Each of the six monthly questionnaires inquired as to the frequency of utilization of private or public health

care service in the Columbia area. Each of the respondents recorded the total number of visits for themselves, their children, and their spouses (if they were married) for each of the following categories: UM-C Family Medical Care Clinic, University Hospital Emergency Room, community hospital emergency rooms, non-family-practice physicians at UM-C, community physicians, minor emergency facilities, public health clinics, or other visits to a health care facility. There were no health maintenance organizations or preferred provider organizations in town at the time of the study. A single measurement of outpatient visits for each family was determined by adding the number of visits in each of these categories by all family members in any given month and calculating an incidence-density measure.

In addition, the numbers of hospital days, after-hours, and weekend visits for medical care and telephone consultations with a physician during the prior month were recorded. The number of illness days measured as days missed from school because of illness for the children and days missed from work because of illness for the working adults were also recorded. Information on changes in marital or employment status was also obtained in each of the monthly questionnaires. Reminder letters were mailed out after the initial questionnaire and after each of the follow-up monthly questionnaires. The data reported are from families who participated throughout the six months of the survey.

The demographic characteristics of the two groups were compared to identify potential confounders. Comparability was assessed using Student's *t* test for differences in means and the chi-square test to evaluate distributions of dichotomous variables. Total utilization of health care services was calculated using an incidence-density measure, mean visits per person per month, and compared using a two-tailed Student's *t* test. Linear multiple regression analyses were performed to analyze the relationships between the utilization of ambulatory health care services and hospitalization as dependent variables and family structure (one vs two parents), income, method of payment, level of social support, children's age, presence of a chronic medical condition, hospitalization in the prior year, and the respondents perception of their health as independent variables. The analyses were done on a mainframe computer using the SAS Institute's Statistical Analysis System.²²

RESULTS

Data reported here are from the 54 (60 percent) of the single-parent families and 166 (72 percent) of the two-parent families that completed all six months of the study.

TABLE 1. BASELINE SOCIODEMOGRAPHIC CHARACTERISTICS OF STUDY POPULATION

Characteristics	Single Parent	Two Parents	P Value
Annual family income (% < \$12,000)	46.3	15.7	.0001
Mean age of mother (years)	36.3	33.7	.03
Mean age of children (years)	10.3	6.8	.0001
Mean number of children living at home	1.65	1.98	.01
Mother's education (% < high school)	28.8	17.7	.02
Race (% nonwhite)	11.1	5.6	NS
Majority of health care costs covered by public or private insurance (%)	72.2	75.9	NS
Employment of female parent (% full time)	83.3	75.9	NS

NS—not significant, if $P > .05$

Ten of the single-parent families had an additional non-married adult living in the household during the study.

The study of the utilization of medical services by single-parent and two-parent families is complicated by the inherent differences that exist between the two groups. When baseline sociodemographic characteristics of the study population were compared, there were statistically significant differences in annual income, with 43.2 percent of single-parent families, compared with 14.9 percent of the two-parent families, having an annual income less than \$12,000 ($P < .0001$).

There were also statistically significant differences in maternal age and mean age and number of children living at home, with the single-parent families having slightly older women and older but fewer children. The single-parent family group had a higher proportion of nonwhites, more mothers with a high school education or less, a smaller proportion with third-party insurance coverage, and a higher percentage of women with full-time employment. These findings, however, were not statistically significant differences (Table 1).

There was a difference in the level of social support in the two groups. Twenty-nine percent of the women in the single-parent families compared with 21.5 percent of the women in the two-parent families reported having fewer than two persons available for help in times of need ($P < .01$).

The baseline health characteristics of single-parent and two-parent families are displayed in Table 2. There were no differences in the proportions of families in each group with prior hospitalization, with the presence of a chronic condition, and with a child perceived to have "fair" or "poor" health. The women in the single-parent family

TABLE 2. BASELINE FAMILY HEALTH STATUS (in percent)

Health Status	Single Parent	Two Parent	P Value
Families with member hospitalized in previous year	24.1	27.7	NS
Families with member with medical condition present	42.6	40.4	NS
Women with perceived health as "fair or poor"	22.2	7.2	.002
Children with perceived health as "fair or poor"	3.7	23.4	NS

NS—not significant, $P > .05$

group were more likely to report "fair" or "poor" personal health.

Utilization

In simple bivariate analysis, single-parent and two-parent families did not differ in their overall use of outpatient health services or of any of the individual facilities. Single-parent families had a mean of 0.37 physician visits per person per month as compared with 0.29 physician visits per person per month for the two-parent families. Extrapolating these figures to a 12-month period would project a yearly rate of 4.44 visits per person per year for the single-parent families compared with 3.48 visits per person per year for the two-parent families. There was a consistent trend factoring an increase utilization by single-parent families during each of the six study months.

Since the two groups differed significantly in the baseline sociodemographic factors, it was extremely important to control for the effects of the following covariates that might influence utilization of health care services: existing chronic medical conditions, mean age of children, method of payment, hospitalization during the 12 months prior to the study period, social support, and annual income. A forced entry multiple regression analysis was conducted to control simultaneously for these potential confounders (Table 3).

When this analysis was done, being in a single-parent family still was related in a statistically significant manner to utilization of health care. Both the presence of a chronic medical condition and having a child under the age of 2 years had a greater influence on utilization than being in a single-parent family. The regression model explained 27 percent of the variance.

Hospitalization

The rates of hospitalization were essentially the same in the two groups. Single-parent families had 0.06 hospital-

TABLE 3. DETERMINANTS OF OUTPATIENT HEALTH CARE UTILIZATION

Independent Variables	Standardized Regression Coefficient	Standard Error	P Value
Intercept	0.34	0.07	.0001
Chronic medical condition No = 0, yes = 1	0.18	0.04	.0001
Hospitalization No = 0, yes = 1	0.10	0.04	.01
Method of payment Out of pocket = 0 3rd party = 1	0.09	0.04	.01
Social support available <2 people = 0 >2 people = 1	-0.08	0.04	.05
Children's ages (years) <2 years = 0 ≥2 years = 1	-0.12	0.04	.003
Annual income <\$12,000 = 0 >\$12,000 = 1	0.009	0.04	.82
Perception of health of female parent Fair or poor = 0 Excellent or good = 1	0.07	0.06	.24
Family structure Single parent = 0 Two parents = 1	-0.10	0.04	.02

Regression model $R^2 = 0.27, P < .0001$

ization days per person per month while two-parent families had 0.03 hospital days per person per month, for hospitalization rates of 1.9 and 1.2 hospital days per year, respectively. Multiple regression analysis was conducted using mean hospitalization days as the dependent variable and entering nine independent variables of interest (Table 4). After controlling for potential confounders, being in a single-parent family did not increase the risk of hospitalization. As expected, families with members who had a chronic illness or were hospitalized in the prior year did have a significantly greater possibility of hospitalization.

Illness Days

While there were no statistically significant differences, there was a trend favoring more absenteeism resulting from illness for both children and mothers in single-parent families. The children with single parents missed 0.60 compared with 0.43 days per month for children with married parents, or the equivalent to 7.2 days and 5.2 days, respectively, of school missed per year. The single women missed 0.22 compared with 0.14 days of work for

TABLE 4. DETERMINANTS OF HOSPITALIZATION

Independent Variables	Standardized Regression Coefficients	Standard Error	P Value
Intercept	0.15	0.19	.80
Chronic medical condition in family No = 0, yes = 1	0.15	0.07	.03
Prior hospitalization in family No = 0, yes = 1	0.19	0.08	.02
Method of payment Out of pocket = 0 3rd party = 1	0.07	0.08	.42
Social support available <2 people = 0 >2 people = 1	-0.10	0.08	.23
Children's mean age (years)	0.03	0.08	.69
Annual income <\$12,000 = 0 >\$12,000 = 1	0.16	0.09	.10
Mother's education <High school = 0 >High school = 1	-0.21	0.08	.02
Mother's employment No = 0, Yes = 1	-0.05	0.05	.34
Family size	-0.003	0.04	.92
Family structure Single parent = 0 Two parents = 1	-0.07	0.10	.50

$R^2 = 0.10, P = .075$

married women as a result of illness per month; these figures can be converted to 2.64 and 1.68 days, respectively, missed from work per year.

Emergency Room Utilization

There were a total of 162 visits to an emergency room during the study period. Single-parent family members made 41 visits, whereas two-parent family members made 121 visits. Approximately one third of families in both groups had at least one emergency room visit during the study period. Both single-parent families and two-parent families had 0.09 emergency room visits per family per month.

Telephone Advice and After-Hours Care

Differences in telephone calls and after-hours care were not statistically significant. One or more telephone calls to a physician were made by 64.8 percent of the single-

parent families, whereas only 54.8 percent of the two-parent families did the same. Thirty-seven percent of the single-parent families and 45.8 percent of the two-parent families sought health care after hours or on weekends. This trend was the only one favoring increased utilization by the two-parent families.

Needed Care

Each monthly questionnaire contained the question "How many times in the past month did you, your spouse, or your children need medical care but for whatever reason *did not* obtain it?" Single-parent families needed but did not obtain care more frequently (20.5 percent) than two-parent families (8.7 percent) ($P < .05$).

Exclusions

The 36 single-parent and 65 two-parent families who completed fewer than six of the monthly questionnaires showed comparable findings. Similarly, when the ten single-parent families with an additional live-in unmarried adult were excluded from the analysis, all differences between the two groupings persisted in each of the categories presented.

DISCUSSION

Previous studies of the health of a single-parent families have not focused on the parents and children simultaneously. Instead, studies have dealt with the parents³⁻¹² or the children^{14,15,17,23,24} separately. One study examined perceived health status but not the health care utilization by both parents and children.²⁵ Although health care is provided to individuals, the family influences definitions of health and disease.^{26,27} It was, therefore, of interest to examine the variety of influences on utilization of health care services by the family unit.

This study demonstrated an increase in the utilization of ambulatory medical services by single-parent family members. Since the reason for a medical encounter was not obtained, it is not known whether the increase in utilization was due more to visits for episodic illnesses, visits for more severe illnesses, or visits for psychosocial problems.

The findings of this study must be moderated by recognition of the limitations of a nonrandomized study, particularly if there are substantial differences in baseline characteristics of the two groups. Single-parent families differ, by definition, from two-parent families. The socioeconomic baseline differences were expected. The difference in social support among the women in the single-parent family was consistent with findings of previous studies. That low social support influences health care

utilization was borne out by this study and was consistent with previous work.

The lower self-perceived health status among the women of the single-parent families is consistent with previous reports of separated and divorced women.^{9,12,13} Although a lower self-perception of health was expected to be a predictor of increased utilization of health care services, this relationship was not supported by this study.

Family structure was not related to either the total number telephone calls or the likelihood of making a telephone call to a child's physician, with both single-parent as well as two-parent families availing themselves of this time-saving, no-cost method of obtaining advice. The increased use of after-hours care by the two-parent families, although not statistically significant, was unexpected. Although it is possible that this observation was a result of medical care utilization by the working male parent, since data on this item were obtained collectively for all family members, it is not known whether such was indeed the case.

Absenteeism from school or work was used in this study as a proxy for disability days. Although there was a trend toward more absenteeism among adults and children in single-parent families, this finding was not statistically significant. This trend might have been related to the higher rate of employment among the women in the single-parent families.

The single-parent families had a high rate (20.5 percent) of needing care but not obtaining it. This rate was higher than that found in a recent report on access to health care, which found that 16 percent of Americans needed health care but had difficulty obtaining it.²⁸ Although it is difficult to compare family data with individual data, the high rate of needing care but not obtaining it among single-parent families suggests even larger health differences between the single-parent and the two-parent groups. Whether these differences were due to differences in health-seeking behavior, access, or financial reasons requires further investigation.

Although there were no differences in third-party insurance coverage, it must be noted that many health insurance policies do not cover ambulatory visits or preventive health measures. Analysis of data from 1977 National Medical Care and Expenditure Survey showed that divorced women were twice as likely to be underinsured and more likely to be on Medicaid assistance.¹³

A variety of methodologic issues may have influenced the results of the study. The appropriateness of using the family unit as the denominator in the measurement of health care utilization must be considered. Although the use of the family unit instead of individual family members as the denominator for determining overall and mean utilization limits the ability to determine which family member was responsible for differences that occurred, the study results demonstrate that a difference does exist. Since

two-parent families have an additional adult, there may have been a dilution effect in health care utilization, as men are lower utilizers of health care services than women or children.

There also may have been a selection bias. The participants were volunteers, and patterns of health care utilization of nonparticipants were unknown. It is possible that the high-use single-parent families and the low-use two-parent families were the ones who volunteered. This possibility seems doubtful but cannot be ruled out. Perhaps a response or recall bias was manifested by high utilizers answering questionnaires more often than low utilizers. There is no reason to believe, however, that such a bias would affect the groups disproportionately. The demographic characteristics of those who responded to questionnaires for all six months of the study and those who responded to questionnaires for five or fewer months were not different.

Making generalizations from these study findings to other populations may be difficult. The population involved in this study was primarily white, employed, and with some third-party health care coverage. Further study is needed to determine whether similar health care utilization patterns exist among other racial or ethnic groups and among single-parent families in large urban areas. The replication of this study in a health maintenance organization would limit access to sites of utilization and would better control for insurance coverage.

The increase in utilization of ambulatory services by single-parent families poses several problems. If insurance companies were to develop differential premiums for higher utilizers, single-parent families would have an additional burden. Health care planners and providers need to consider whether the availability of services are convenient to single parents. If single-parent families feel they need medical care but are not obtaining it, the factors causing this behavior need to be determined. Currently, many employers allow continuation of group health insurance policies for a limited amount of time after a divorce. If divorce settlements do not include health insurance coverage, perhaps a mechanism for reasonably priced health insurance for single-parent families should be developed. The large number of single-parent families in this country dictates the need for developing a clear understanding of the factors that influence the health care utilization of this group.

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