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Children at Risk: II. Risk Factors and Clinic Utilization

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Abstract. Using a strategy involving multiple raters and instruments, the authors compared 134 clinic subjects with controls matched on sex, age, and socioeconomic status to determine how various risk factors are related to clinic utilization apart from their effects on children's symptomatology. Parental psychopathology, family size, and marital status were most predictive of children's symptom levels, while stress levels, family size, and marital status were most predictive of clinic utilization. Although children's total symptom levels explained 27.6% of the variance in clinic utilization, other factors (family size, family history of divorce, stress, and parental psychopathology) explained an additional 13.2% of the variance. Findings indicate that clinicians and health care planners must carefully assess variables other than children's symptom levels in order to better understand children's mental health services utilization, develop more robust models of risk, and increase the effectiveness of our efforts directed towards prevention and intervention. *J. Am. Acad. Child Adolesc. Psychiatry*, 1990, 29, 5:804-812. **Key Words:** risk factors, child psychopathology, clinic utilization, military families, parental psychopathology.

Although many researchers have examined the relationships between various risk factors and child psychopathology (e.g., see Jensen et al., 1990, for a review of this research), relatively few investigators have studied which of these risk factors are related to clinic utilization. This is unfortunate because risk factors, which presumably affect clinical samples, may actually mediate their effects through the encouragement of clinic utilization. Most previous research has failed to distinguish between factors predisposing to clinic utilization, symptomatology, and psychopathology, assuming instead that these three constructs were synonymous. Although the severity of children's symptoms is indeed an important factor mediating their utilization of psychiatric services, other factors likely account for a substantial portion of the use of services. For example, surveys of behavior problems in the general population indicate widespread occurrence of behavioral pathology which does not coincide with the percentage of the population using mental health services (Offord et al., 1987). Furthermore, studies comparing clinical and control samples indicate that symptom levels alone may not reliably differentiate between the groups, since control group parents report a surprising number of presumed psychopathological symptoms in their children (Wolff, 1967; Miller et al., 1971; Pfeffer et al., 1986).

Given the current estimates of need for mental health services for children (Gould et al., 1982; Offord et al., 1987), it is vitally important that the various ways of measuring psychopathology (symptom severity, presence of diagnosis-

ble psychopathology, and clinic utilization) be examined and compared, and that risk factors' effects on clinic utilization be separated from their effects on symptom levels and psychopathology. The authors will briefly review the available literature on factors influencing clinic utilization.

Apart from symptom severity, clinic utilization may vary as a function of sociodemographic characteristics. Rosen et al. (1969) reported significantly lower use rates for minorities, while Rembar et al. (1982) found an overrepresentation of blacks in their sample of clinic children (particularly from divorced families). In contrast, Novack and colleagues (1975) found more whites and fewer Hispanic children in their psychiatric clinic sample, compared to children using general health services. Levy and Rowitz (1971) reported that neighborhoods with high clinic utilization rates were characterized by higher levels of poverty and unemployment. Similarly, Novack et al. (1975) found that two-thirds of a psychiatric clinic sample received public assistance, compared to only 35% of the group receiving general health services and 24% of a representative neighborhood population group.

In addition to race and socioeconomic status (SES), children's age has been linked to clinic utilization. Although there is little evidence that younger children are at greater risk for psychopathology, they are more likely to be referred for mental health services (Tuckman and Regan, 1967; Novack et al., 1975). Possibly, parental inexperience may result in the selective referral of younger and firstborn children, leading to their overrepresentation in clinical populations.

Male sex has also been linked to clinic utilization. Novack et al. (1975) found that boys aged 5 to 14 were overrepresented in a mental health clinic, while boys over 14 years old and under 5 years old used mental health services at the same rate as girls. Wolff (1967) reported that clinic-referred girls differed more from control girls than clinic boys differed from control boys, indicating that boys tend to be referred from psychiatric evaluation more readily than girls, even when levels of psychopathology are similar.

Parental marital status and family structure have been linked to use of mental health services. For example, Rosen et al. (1969) found utilization rates for children of female

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heads of household to be twice that of children from intact (two-parent) families. Effects of marital status on utilization may vary with other sociodemographic factors as well. For example, Novack et al. (1975) found that mental health clinic users were more likely to come from female head of household families if the family was white or black, while the reverse was true for Hispanic families. While most studies seem to implicitly assume that single parent families are more stressed due to adverse socioeconomic and emotionally traumatic circumstances (e.g., marital turmoil preceding the divorce, resulting loss of income, etc.), it is possible that fathers of intact families actively dissuade mothers from pursuing evaluation and treatment of children's behavior problems. Once the parents separate (or if the father is absent for other reasons), the mother may bring the child in for evaluation.

A number of carefully designed studies have shown that parents' attitudes about and perceptions of their child may be more important in referral than children's psychopathology per se. Richard et al. (1981) found both "deviant" and "nondeviant" children in a clinic population and concluded that parental adjustment mediates some parents' referral of a nondeviant child to the clinic. Similarly, Griest et al. (1979) reported that mothers' perceptions of clinically referred children's behavior were best predicted by mothers' own depression, rather than objective observers' child behavior ratings. In a follow-up study, Griest et al. (1980) found that mothers of control (nonclinic-referred) children based their perceptions on child behavior alone, while mothers of clinic-referred children demonstrated significant interactions between their own maladjustment and perceptions of child behavior problems.

Ordinal position and family size have also been associated with clinic utilization. Only children tend to be underrepresented in clinic populations, but paradoxically, first-born children are more frequently referred to psychiatric clinics than later-born children (Tuckman and Regan, 1967). Possibly, this could be due to the sibling rivalry often seen in oldest children after the birth of a sibling. The relationship between ordinal position and clinic utilization may be mediated by parental experience with caretaking. Schaefer and Coie (1977) reported that mothers of firstborn sons were more likely to seek help from mental health professionals, while mothers of later-born sons were more likely to see the problem behaviors as normal, self-limited, developmental variations.

Like ordinal position, the relationships between family size and clinic utilization appear to be quite complex. Although Rosen et al. (1969) reported that utilization rates for children of intact families decreased with increased family size, Tuckman and Regan (1967) found an interaction between the size of the family and the problem for which the child is referred to a psychiatric clinic. Smaller family size is associated with problems of anxiety, interpersonal relationships, and habit formation, while larger family size is associated with problems in school, aggression, and antisocial behavior.

Even though stressful life events have long been considered a risk factor for child psychopathology (Johnson, 1986; Garmez, 1987), the authors have been unable to locate any studies that have systematically examined the relationships

between stressful life events and clinic utilization. In related research, Hodges et al. (1984) found that children treated within a psychiatric clinic showed increased life events related to various aspects of family turmoil (parent-parent conflicts, parent-child conflict, divorce, etc.), compared to a pediatric clinic group and to normal controls. Despite evidence that the number of stressful life events is increased in children who use mental health services (Jensen et al., 1990), it is unclear how stressors affect utilization apart from their effects on symptom severity. Possibly, clinical and community samples respond differently to similar levels of stress, suggesting complex interactions between stress, clinic utilization, and psychopathology. However, no research has yet addressed these questions.

Previous research comparing community and clinical samples has suffered from a variety of methodological and conceptual limitations, including relying upon a single source of information about children's behavior problems (e.g., Wolff, 1967), the exclusive use of lower SES samples (e.g., Kellam et al., 1981), inadequate instrumentation (e.g., Novack et al., 1975), small sample size (e.g., Griest et al., 1979, 1980), and failing to address the differences between utilization and symptomatology (e.g., Pfeffer et al., 1986).

Additionally, almost no research has examined the interactions between SES, availability of services, and utilization. This omission is likely to be a problem with almost all studies conducted in the United States where mental health care is most readily available to either the very poor or to the wealthy. Because most previous research has drawn upon samples from poor/disadvantaged populations, it is difficult to tease apart the effects of SES from the effects of the provision of free psychiatric services. Furthermore, with the exception of Pfeffer et al. (1986), no studies of clinic utilization and child psychopathology have been done in the last decade. While a fair number of recent studies related to *clinic attrition* have been conducted, it is not clear that such studies apply to questions of utilization of care.

To better determine the effects of the above-mentioned risk factors on clinic utilization, while avoiding some of the confounds seen in previous studies, the authors studied children referred to a military child psychiatric clinic who were matched on age, sex, and socioeconomic status with a non-clinical sample. In this study, the authors sought to examine the relationships between each of the risk factors, symptom levels, and clinic utilization, as well as examine potential interaction effects between risk factors, children's symptoms, and clinic utilization. Unlike previous studies, families in this sample had free and equal access to psychiatric services across a range of socioeconomic conditions, which may have eliminated some of the distortions likely to be present in previous studies. Additionally, multiple raters of children's psychopathological symptoms were used in both the clinical and community samples, and a number of risk factors were individually and simultaneously examined.

Method

One hundred thirty-four 6 to 12-year-old children (81 boys, 53 girls, average age 8.92 years) referred by the child's parents or school personnel to a military child psychiatry

TABLE 1. Hierarchical Regression Model, Child Depression Inventory Symptom Levels

Independent Variable	Beta Coefficient	F Value	p Value	Variance Explained %	Total Variance %	Pearson Corr.
Age	0.038					0.004
Male sex	0.056					0.120
Rank	-0.118					-0.110
Marital status	0.021					0.143
		NS				
No. of siblings	-0.163					-0.163
Ordinal position	0.238					0.035
		4.30	0.016	0.060	0.060	
Ordinal Position $\times$ no. of siblings	-0.182					-0.038
		NS				
Clinical status	0.173					0.319***
HSCL-mother	0.154					0.246**
HSCL-father	0.124					0.155
Stress	0.273					0.269***
		5.33	0.001	0.191	0.046	
Interaction terms						
HSCL-fathers $\times$ clinic status	0.692					0.043
		4.80	0.030	0.029	0.220	
HSCL-mother $\times$ clinic status	0.052					-0.080
Stress $\times$ clinic status	-0.087					-0.102
Marital status $\times$ clinic status	-0.009					0.187*

Note: HSCL = Hopkins Symptom Checklist.

$R^2 = 0.220$.

R^2 (adjusted for df) = 0.178, $F = 5.25$, $p \leq 0.0001$, $df = 7.130$.

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

clinic were systematically evaluated. In addition to the psychiatric examinations performed on each child, both parents completed the Child Behavior Checklist (CBCL) (Achenbach and Edelbrock, 1983), while the children completed the Child Depression Inventory (CDI) (Kovacs and Beck, 1977) and the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds and Richmond, 1978). Both parents also completed the Hopkin's Symptom Checklist (HSCL) (Derogatis et al., 1974) on themselves, while mothers completed the Life Events Record (Coddington, 1972) to document stressors occurring to the child during the previous 12 months.

Comparison Sample

The 134 children evaluated in the child psychiatric clinic were matched on age, sex, and military rank of the father (as an index of SES) with a representative community sample: the 134 community sample children were obtained from part of a larger study sample that was comprised of 213 families selected from a list of all military personnel using a stratified random sampling method (see Jensen et al., 1989, for a complete description of the sample).

Results

Because of the large number of predictor variables (nine risk factors) and outcome variables (four psychopathology

measures), the authors performed a multivariate analysis of variance (MANOVA) to determine the overall significance of the relationship between the independent and dependent variables in the data set. The MANOVA indicated a high degree of overall significance to the overall model (Pillai's test, approximate $F = 2.5717$, hypothesized $df = 68$, error $df = 428$, $p \leq 0.0001$).

In a second series of analyses, hierarchical regressions were done on each of the outcome variables (CDI, RCMAS, and mothers' and fathers' CBCL scores, respectively). In the first step, age, sex, SES (father's military rank), and parental marital status (dummy coded as 1 = history of divorce, 0 = no history of divorce) were entered as a single block of variables. When these combined variables added significant explanatory power to the outcome variable, they were allowed to remain in the model. In the second step, the variables of the child's ordinal position and family size were entered into the model. In the third step, the interaction term (i.e., the product) of ordinal position and family size was entered stepwise into the model. In the fourth step, the main effects of parents' HSCL scores, life stress, and the child's clinical status (dummy coded as 1 = clinical sample, 0 = community sample) were entered simultaneously as a single block of variables. In the fifth and final step, the interaction terms of clinical status with all of the risk variables were allowed to enter in stepwise fashion. Thus, only those interaction

TABLE 2. Hierarchical Regression Model, Children's Manifest Anxiety Scale

Independent Variable	Beta Coefficient	F Value	p Value	Variance Explained %	Total Variance %	Pearson Corr.		
Age	− 0.088	NS				0.074		
Male sex	0.026					0.038		
Rank	− 0.180					− 0.098		
Marital status	0.036					0.099		
No. of siblings	− 0.049	0.23	0.794	0.004	0.004	− 0.049		
Ordinal position	− 0.043					− 0.057		
Ordinal position × no. of siblings	− 0.152	NS		0.058	0.062	− 0.055		
Clinical status	− 0.038	2.00	0.097			0.109		
HSCL-mother	0.155					0.157		
HSCL-father	0.084					0.128		
Stress	0.169					0.197*		
Interaction terms								
HSCL-father × clinic status	0.818	5.69	0.019	0.040	0.102	0.034		
HSC ¹ -mother × clinic status	0.306					− 0.073		
Stress × clinic status	− 0.002					− 0.137		
Marital status × clinic status	− 0.011					0.035		

Note: HSCL = Hopkins Symptom Checklist.

$R^2 = 0.102$.

R^2 (adjusted for df) = 0.053, $F = 2.07$, $p \leq 0.05$, $df = 7, 128$.

* $p \leq 0.05$.

terms that added significantly to the explained variance of the dependent variable (after entering the main effect terms) were allowed to remain in the fifth step of the model.

Tables 1 through 4 indicate the results for these regressions on the CDI, RCMA, and mothers' and fathers' CBCL scores, respectively. Table 1 indicates that mothers' and fathers' own symptoms (HSCL scores), stress, and clinical status explained most of the variance in CDI levels. However, in addition, the interaction between fathers' HSCL scores and clinical status also contributed significant, independent variance to this equation (explaining an additional 2.9% of the variance in CDI scores), indicating a stronger relationship between children's CDI scores and fathers' HSCL symptoms in the clinic group, compared to the control group. Interestingly, the regression on Children's Manifest Anxiety Scale scores generally showed no main effects on any variables, but, like the CDI scores, this regression showed a significant interaction effect between fathers' HSCL scores and clinical status (Table 2).

Table 3 indicates that while sociodemographic variables do provide some prediction of mothers' CBCL scores (principally marital status and family size), the majority of the variance is explained by mothers' HSCL scores, followed by clinical group status, stress, and fathers' HSCL scores. Interaction terms added no predictive power to explain mothers' CBCL scores.

Table 4 demonstrates the hierarchical regression model on fathers' CBCL scores. As is the case with the regression on mothers' CBCL scores, marital status and family size contributed a modest amount of explanatory power to fathers' CBCL scores. However, fathers' HSCL scores and clinical status, followed by mothers' HSCL scores and stress, comprised the bulk of the explained variance.

To determine the overall strength of relationships among the risk factors, interaction effects, and the psychopathology outcome measures, all outcome variables were converted to z scores and summated (which then reflected the severity of the child's symptoms according to all raters). Table 5 shows the hierarchical regression model using this summated z score (the means of the nonmissing values were substituted for any missing values). These data indicate that sociodemographic factors (especially marital status and family size) may account for up to 13.6% of the variance in symptom levels.

Table 6 shows the hierarchical stepwise regression of the various risk factors on children's clinical status, indicating that parents' marital status, family size, and the interaction between family size and sibling position altogether accounted for 23.6% of the variance in clinic utilization. Furthermore, the variables of stress and parents' HSCL scores (mother > father) contributed only an additional 6.9% to the explained variance in clinic group membership.

To additionally clarify the relationships between symptom

TABLE 3. *Hierarchical Regression Model, Child Behavior Checklist (Mothers)*

Independent Variable	Beta Coefficient	F Value	p Value	Variance Explained %	Total Variance %	Pearson Corr.
Age	0.078					0.030
Male sex	0.015					0.085
Rank	-0.058					-0.075
Marital status	0.203					0.203*
		6.19	0.014	0.041	0.041	
No. of siblings	-0.251					-0.251**
Ordinal position	0.030					-0.142
		0.23	0.794	0.064	0.105	
Ordinal Position $\times$ no. of siblings	0.025					-0.160
		NS				
Clinical status	0.274					0.428***
HSCL-mother	0.412					0.515***
HSCL-father	0.213					0.201*
Stress	0.318					0.367***
		19.78	0.0001	0.326	0.431	
Interaction terms						
		NS				
HSCL-mother $\times$ clinic status	-0.220					-0.335***
HSCL-father $\times$ clinic status	-0.446					-0.080
Stress $\times$ clinic status	-0.079					-0.150
Marital status $\times$ clinic status	0.324					0.213**

Note: HSCL = Hopkins Symptom Checklist.

$R^2 = 0.431$.

R^2 (adjusted for df) = 0.402, $F = 14.94$, $p \leq 0.0001$, $df = 7, 138$.

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

levels, risk factors, and clinic utilization, two stepwise discriminant analyses were performed on clinical status. These analyses were done to determine how much of the explained variance in clinic utilization was due to the severity of the child's symptoms per se, compared to the amount of variance due to other sociodemographic and sociopsychological variables (age, sex, marital status, parental psychopathology, etc.). The first of these analyses, which included only the four symptom measures (CDI, RCMAS, and parents' CBCL scores), indicated that children's symptoms explained about 27.6% of the variance in clinic utilization. However, in the second regression, when all risk factors were allowed to enter the model (in addition to children's symptom levels), 40.8% of the variance was explained, indicating that factors *other than symptom severity* may result in a substantial increase in the explanatory power of models of clinic utilization (regressions available from the authors upon request).

Discussion

Findings will be discussed by each of the risk factors examined.

SES, age, and sex. As indicated in the regressions (Tables 1-6), no relationships emerged between children's sex, age, and fathers' military rank and children's symptoms, nor did the relationships between these variables and children's symptoms differ as a function of children's clinic status. These findings are not surprising, however, since the CBCL-

T scores have been standardized to eliminate sex and age differences in symptom scores (Achenbach and Edelbrock, 1983); likewise, the CDI has been demonstrated to show few differences as a function of sex and age (Smucker et al., 1986). Of course, the authors matched the clinic and control groups on children's sex, age, and family SES/rank, so the authors were unable to determine if clinic utilization varied as a function of these variables. Additional studies of populations who have medical care routinely available should examine utilization rates and symptoms levels as a function of SES, age, and sex.

Marital status. By and large, results suggest moderate relationships between parental marital status and children's symptoms (Table 5). Furthermore, parental marital status (currently or previously divorced) was a significant predictor of clinic utilization, even after controlling for symptom levels. The strength of the relationships between children's symptom levels and a family history of divorce were not conditional upon clinical status, however.

For clinicians working with currently or previously divorced families, these findings indicate the need to address therapeutic issues above and beyond the child's symptoms and diagnosis per se. Thus, issues related to disruptions in family structure—e.g., visitation by noncustodial parents, custodial battles, problems associated with the blending of two new families, adjustment of the current parent(s), etc.—may have as much or more to do with the reasons for referral

TABLE 4. Hierarchical Regression Model, Child Behavior Checklist (Fathers)

Independent Variable	Beta Coefficient	F Value	p Value	Variance Explained %	Total Variance %	Pearson Corr.
Age	0.019					-0.046
Male sex	-0.009					0.051
Rank	-0.040					-0.115
Marital status	0.349					0.349***
		20.02	0.001	0.122	0.122	
No. of siblings	-0.105					-0.108
Ordinal position	0.115					-0.002
		7.78	0.001	0.019	0.141	
Ordinal Position $\times$ no. of siblings	-0.339					-0.064
		NS				
Clinical status	0.272					0.428***
HSCL-mother	0.146					0.353***
HSCL-father	0.387					0.383***
Stress	0.186					0.296***
		13.99	0.001	0.248	0.389	
Interaction terms						
		NS				
HSCL-mother $\times$ clinic status	-0.044					-0.171*
HSCL-father $\times$ clinic status	-0.017					-0.225**
Stress $\times$ clinic status	-0.257					-0.045
Marital status $\times$ clinic status	0.349					0.086

Note: HSCL = Hopkins Symptom Checklist.

$R^2 = 0.389$.

R^2 (adjusted for df) = 0.358, $F = 12.55$, $p \leq 0.0001$, $df = 7, 138$.

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

TABLE 5. Hierarchical Regression Model, Combined Symptom Levels (Z Scores)

Independent Variable	Beta Coefficient	F Value	p Value	Variance Explained %	Total Variance %	Pearson Corr.
Age	0.083					0.112
Male sex	0.035					0.101
Rank	-0.053					0.090
Marital status	0.221					0.284***
		11.79	0.001	0.074	0.074	
No. of siblings	-0.235					-0.195*
Ordinal position	-0.141					0.024
		7.08	0.001	0.054	0.128	
Ordinal Position $\times$ no. of siblings	-0.379					0.002
		5.37	0.05	0.008	0.136	
Clinical status	0.384					0.538***
HSCL-mother	0.000					0.179*
HSCL-father	0.153					0.185*
Stress	0.080					0.117
		8.71	0.0001	0.178	0.314	

Note: HSCL = Hopkins Symptom Checklist.

$R^2 = 0.354$.

R^2 (adjusted for df) = 0.314, $F = 8.71$, $p \leq 0.0001$, $df = 8, 137$.

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

TABLE 6. *Hierarchical Regression Model, Children's Clinical Status*

Independent Variable	Beta Coefficient	F Value	p Value	Variance Explained %	Total Variance %	Pearson Corr.
Age	0.065					0.149
Male sex	0.028					0.099
Rank	0.003					-0.014
Marital status	0.134					0.288***
		12.10	0.001	0.076	0.076	
No. of siblings	-0.210					-0.348***
Ordinal position	0.131					0.018
		13.17	0.0001	0.137	0.213	
Ordinal position $\times$ no. of siblings	0.208					0.095
		11.44	0.0001	0.023	0.236	
HSCL-mother	0.046					0.210*
HSCL-father	0.018					0.057
Stress	0.147					0.309***
		9.48	0.0001	0.069	0.305	

Note: HSCL = Hopkins Symptom Checklist.

$R^2 = 0.345$.

R^2 (adjusted for df) = 0.305, $F = 9.48$, $p \leq 0.0001$, $df = 7.138$.

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

as the child's symptomatology. Awareness and clinical management of all of these factors may be critical determinants of ultimate therapeutic success.

Parental psychopathology. Moderate relationships were demonstrated between parents' own symptoms and children's behavior problems (Tables 3 and 4). Also, parental symptoms predicted children's clinic utilization, even after children's symptom levels were held constant (e.g., Table 6 and additional analyses available upon request).

Interestingly, children's CDI and RCMAS scores showed stronger relationships between *fathers'* symptoms within the clinic sample than the community sample (Tables 1 & 2). Furthermore, in several post hoc analyses, the authors tested for similar interactions between *mothers'* symptoms, clinic status, and children's CDI and RCMAS scores. Like the findings for fathers, these results indicated that the relationships between mothers' symptoms and children's CDI and RCMAS scores were conditional upon children's clinic status ($p \leq 0.06$, and $p \leq 0.0005$, respectively), while direct (main) effects of maternal psychopathology on children's self-reported symptoms were insignificant (analyses available upon request).

As expected, the findings in this report suggest important relationships between parent and child symptomatology. Furthermore, parental symptoms may account for children's mental health clinic utilization, above and beyond children's symptoms levels per se. However, the present findings also suggest that parents' own symptoms may have less impact and influence on their children's symptoms in nonclinical settings. A parent may be quite symptomatic in community settings, but if the child has enough other support systems available (e.g., in the other parent, siblings, or peers), he/she may remain relatively unaffected by the parent's dysfunction.

However, in some instances, these support systems can be lost (e.g., parental absence, divorce, geographic move with subsequent loss of peer relationships, sibling leaving home, etc.) or overwhelmed, thereby increasing the child's dysfunction and eventual use of mental health services.

In clinical settings, these findings highlight the necessity of carefully interviewing a child to assess his/her symptoms of depression and anxiety, particularly in regard to their possible relationships to parental dysfunction. In addition, the clinician must be prepared to tease out any possible influences of the parents' own symptomatology on their reporting of the child's symptoms (Jensen et al., 1988) as well as the effects of parents' symptoms on their seeking out care for the child at this particular time. Obviously, effective care for such children is only possible to the extent that parents' difficulties are also addressed as a part of the overall treatment plan.

Ordinal position/family size. While birth order was generally not related to children's symptoms, family size was. As expected, clinic referral/utilization was associated with smaller family size and more proximal sibling position and with the interaction between family size and sibling position (Table 6). However, the authors found no significant interaction effects of clinic status $\times$ ordinal position/family size upon child symptoms. The relationships reported by other investigators of larger family size upon the expression of conduct disorder symptoms may not be apparent in the authors' sample, since unemployment and extremely low socioeconomic conditions were not present. Possibly, the availability of free medical care and other services within the military settings may limit the effects of this risk factor reported for other populations.

To the extent that children from smaller families and earlier birth order are more frequently referred to clinical settings,

clinicians should consider whether such a referral represents a true psychopathological condition in the child per se, or if it reflects other factors such as parental inexperience, financial factors, etc. Potentially, these latter situations may more likely require parental support in terms of education about children's normative behaviors at different ages, parent skills training, etc.

Stress. In general, stress levels showed moderate relationships with children's symptoms. Stress was also related to children's clinic utilization, above and beyond the variance attributed to children's symptom levels. No evidence was found for differential effects of stress upon clinical versus community samples, however.

A comparison of the zero order correlations between stress, parental psychopathology, and the z score symptom total (Table 5) indicates that stress is of equal or lesser importance than parental psychopathology in its relationship to global symptom levels. In contrast, inspection of the zero order correlations in Table 6 suggests that stress may be of greater significance in its relationship to clinic utilization when compared with other variables such as parental psychopathology. These findings indicate the importance of the clinician's awareness and examination of such intervening variables. When stressful life events are related to a family's use of mental health services above and beyond the child's actual symptomatology, clinical management of these conditions is essential.

Children's total symptom levels (combined z scores) were most predictive of clinic utilization (explaining 27.6% of the variance); however, as noted above, other variables contributed significantly and importantly to those who used services (accounting for an additional 13.2%). Among other variables predicting clinic utilization, parents' (especially maternal) psychopathology has been thought to be an especially important variable. However, the actual strength of the zero order correlations (point biserial) with clinical status (Table 6) suggests that parents' symptom levels, though salient, were not as important as marital status, family size, and stress levels in the relationship with clinic status.

Furthermore, with regard to the question of the relative importance of *maternal* versus *paternal* psychopathology on clinic utilization, the zero order correlation (Table 6) between mothers' HSCL scores (0.210) and clinic utilization tended to be higher than the zero order correlation between fathers' HSCL scores and clinic utilization (0.057) (*t* test for significant differences in dependent correlations, $t = 1.83p \leq 0.10$, two-tailed). In contrast, children's total symptom levels (combined z score) were equally predicted by mothers' and fathers' HSCL scores (Table 5). These findings may indicate that mothers may be more likely than fathers to seek care for their children when they themselves are symptomatic. In contrast, mothers' and fathers' own psychopathology may be equally related to actual levels of child symptomatology.

To place the authors' findings in perspective, several cautions are in order. First of all, although this study benefitted from the nature of the no-cost medical care system (since economic barriers could not affect this study's utilization patterns), the results may not be generalizable outside of the military setting. For example, military families may be ex-

posed to stresses not routine in other populations. Furthermore, military families tend to be a select population, since military soldiers with gross psychopathology are screened from the service. Also, those soldiers whose family members have severe health problems may have to get out of the service, if the family member's condition prevents the soldier from reliably completing his/her duties (Jensen et al., 1986).

An additional limitation of this study is that diagnoses were not determined as a part of the study. Had the authors been able to incorporate this into the study, they could address the question of how risk factors may differentially impact upon utilization patterns, symptoms levels, and actual diagnoses. Additional research will benefit from examining all three of these factors.

Also, the age range of the authors' sample was restricted to 6 to 12-year-old children. It is likely that the factors affecting utilization patterns in teenagers or preschool children may be quite different from those reported here, in light of the findings of Novack et al. (1975) and Rosen et al. (1969) concerning differing utilization patterns as a function of children's age and sex.

Findings suggest that future models of child psychiatric services utilization would benefit by close attention to variables other than children's psychiatric symptom levels in explaining clinic utilization. In particular, the relationships between variables such as family size, the child's ordinal position, family history of divorce, stressful life events, parental symptom levels, and children's clinic utilization must be considered, if we wish to understand why children use mental health services. Furthermore, additional studies of the relationships between children's age, sex, SES, and clinic utilization are needed, and the demographic characteristics of children using mental health services and those from the general population should be compared and contrasted. Although these problems are complex, such research may allow us to develop more robust models of risk and increase the effectiveness of our efforts directed towards prevention and intervention.

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