

## Behavioral Upset in Medical Patients—Revised: Evaluation of a Parent Report Measure of Distress for Pediatric Populations

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### **Abstract:**

Examined the utility of a new parent-report measure designed specifically for pediatric inpatients, the Behavioral Upset in Medical Patients-Revised (BUMP-R). The BUMP-R was administered to 151 mothers of hospitalized children ages 4-12 years the day following the child's hospital admission. The BUMP-R demonstrated good internal consistency and a factor analysis revealed four factors identified as negativity/agitation, amiability, dysphoria, and noncompliance. Children exhibiting behavioral distress at home were more likely to experience adjustment problems upon hospitalization. Demographic and illness-related variables were not substantial risk factors for hospital adjustment difficulties.

**KEYWORDS:** behavioral upset distress; pediatric; assessment hospitalization.

Pediatric psychologists are often consulted to evaluate a child's emotional adjustment to a medical setting. An examination of a pediatric psychology consultation service in a children's hospital found 19% of consultations were referred for depression or suicide attempts and 12% for adjustment to chronic illness (Olson et al., 1988). When estimating prevalence of such adjustment problems, however, different criteria, age groups, and assessment techniques have been utilized.

The evaluation of emotional distress in pediatric settings is further complicated by the scarcity of measures designed specifically for the assessment of children who are hospitalized. The application of standard measures of emotional or behavioral adjustment, such as the Children's Depression Inventory (CDI; Kovacs, 1983), may not be suitable for hospitalized children. For example, the CDI contains items regarding school behavior and performance which do not pertain to the hospitalization period, as well as items involving vegetative signs of depression, which may be confounded by the child's medical illness. Similarly, a close inspection of a structured interview of depression administered to pediatric cancer patients found significant overlap between depressive symptoms and impairment due to illness (Heilgenstein & Jacobsen, 1988). These results highlight the limitations of using measures standardized with healthy children on pediatric populations.

Few instruments target emotional upset in pediatric populations. A parent rating scale, the Behavioral Upset in Medical Patients-Revised (BUMP-R; Saylor et al. 1987), focuses on emotional distress and was devised for hospitalized children with various medical diagnoses. The current study examined the applicability of the BUMP-R in studying distress in a hospitalized pediatric population ages 4-12 years. Few studies have investigated psychological distress in pediatric populations of preschool children. The relationship of background variables (i.e., gender, age, ethnicity, family composition, SES, chronicity of illness, diagnosis, number of prior hospitalizations, duration of illness) to adjustment to hospitalization was also examined.

### **METHODS**

#### *Subjects*

The sample consisted of 151 hospitalized children (78 boys, 73 girls) from consecutive pediatric admissions at a university teaching hospital. Ages of the children ranged from 4 years 1 month to 12 years 11 months ( $M = 7$  years 6 months;  $SD = 2$  years 5 months). The sample of children was 70% Caucasian, 27% African American, and 3% Other (Asian American or Hispanic American); 66% of the children lived in two-parent homes and 34% lived in single-parent homes. The sample was predominantly lower to middle SES (92%), based on the five levels of social class as assessed by Hollingshead's (Myers & Bean, 1968) Two-factor Index of Social Position (Class 1 = 3%; Class 2 = 5%; Class 3 = 16%; Class 4 = 39%; Class 5 = 37%).

With respect to illness-related variables, 33% of the children had never been previously hospitalized, 21% had one prior hospitalization, and the remaining 46% had multiple hospitalizations (from 2 to 28). Duration of illness ranged from diagnosis at birth to diagnosis upon hospital admission, with 50% of the patients diagnosed within the past 6 months.

Based on *Nelson's Textbook of Pediatrics* (Behrman, Vaughn, & Nelson, 1987), 118 of the medical diagnoses obtained from mothers were categorized into six illness groups: 19% cardiovascular/respiratory (e.g., cystic fibrosis); 19% digestive (e.g., inflammatory bowel disease); 18% immunity, allergy, or related diseases (e.g., asthma); 16% urinary (e.g., nephrotic syndrome); 15% nervous (e.g., spina bifida); and 13% not yet diagnosed. Patients not categorized had diagnoses not conforming with any of the six illness groups (e.g., burns). Furthermore, 130 children were categorized on chronicity of illness, with 32% receiving diagnoses for acute illnesses (e.g., appendicitis) and 68% for chronic illnesses (e.g., hydrocephalus). Patients not classified for chronicity were children with ambiguous or unknown illnesses.

### *Measure*

The Behavioral Upset in Medical Patients-Revised (BUMP-R; Saylor et al., 1987) is a 56-item parent rating of the child's behavior corresponding to emotional distress at the hospital and at home. The frequency of child behaviors is rated by parents on a Likert scale ranging from *never* (0) to *always* (4).

This scale is a revision of a 32-item nurse rating of nonpsychiatric adult patients (Zeldow & Braun, 1985): Saylor et al. (1987) revised the scale for use with children by having five judges independently evaluate which items were inappropriate for children. Those items deemed inappropriate by a majority of judges were deleted, yielding a 28-item scale. Instead of ratings by nurses, parents initially rate the behavior the child exhibits in the hospital followed by ratings of the same behaviors the child displayed at home before hospitalization.

Prior to this investigation, psychometric data for the BUMP-R were limited. For the adult version, internal consistency was reported as .93 and test-retest reliability over variable intervals was reported as .66. Four factors were identified from 213 inpatient adults, including behavioral regression, poor patient-staff relationship, depression and anxiety, and passivity and withdrawal (Zeldow & Braun, 1985).

### *Procedure*

Participation was solicited the day following the child's hospital admission. This delay allowed approximately 24 hours of behavior for the parents to assess reaction to hospitalization (time since hospitalization ranging from 17 to 35 hours). During this inpatient visit, mothers were instructed to first rate their child's behavior since the current hospitalization and then rate their child's behavior at home prior to hospitalization. Informed parental consent and child verbal assent were obtained independently.

## **RESULTS AND DISCUSSION**

Analyses indicated that age, SES, and the BUMP-R scores were normally distributed. However, analyses of the relationships between BUMP-R scores and the number of prior hospitalizations and duration of illness were based on Spearman rho correlation coefficients because these two illness variables were not normally distributed.

*T* tests revealed no significant differences in the mean ratings of hospital or home distress for gender, ethnicity,

family composition (single- vs. two-parent homes), or chronicity of illness. Analysis of variance found no significant difference in BUMP-R scores among diagnostic groups. In addition, BUMP-R scores were not correlated with SES, the number of prior hospitalizations, or duration of illness.

Age evidenced a mild relationship ( $r = -.17, p < .05$ ) with BUMP-R-Hospital scores, with younger children receiving higher distress ratings. The magnitude of this correlation is comparable to that found in the study that introduced the BUMP-R (Saylor et al., 1987). Thus, younger children may show more distress upon hospitalization, although this relationship does not appear strong.

Maternal ratings of child distress during hospitalization (BUMP-R-Hospital  $M = 27.0, SD = 13.1$ ) were significantly higher,  $t(151) = 3.15, p < .01$ , than ratings of distress home (BUMP-R-Home  $M = 23.8, SD = 11.2$ ), suggesting that hospitalization may precipitate emotional distress during the hospital stay. Ratings of distress in the hospital were also significantly correlated with ratings of distress in the home ( $r = .50, p < .0001$ ). This result corroborates the correlation found by Saylor et al. (1987). These authors proposed that premorbid psychological functioning, as measured by the BUMP-R-Home, predicts a child's adjustment to the stress of hospitalization. Consequently, children reportedly experiencing substantial emotional distress at home may be more susceptible to adjustment difficulties upon hospitalization.

The BUMP-R-Hospital scores were further analyzed to explore the psychometric characteristics of this measure of adjustment to hospitalization. Cronbach's coefficient alpha of the BUMP-R-Hospital measure was .87, suggesting high internal consistency. Factor analytic procedures were performed on the BUMP-R-Hospital scores. Principal factors were derived from the correlation matrix and the diagonal was replaced by squared multiple correlations as communality estimates. The quartimax orthogonal rotation was selected because it assumes that a single general factor accounts for a substantial amount of the variance, which is implied with high internal consistency. Examination of eigenvalues and the scree plot supported extraction of four factors, which accounted for 85% of the variance. Moreover, the quartimax four-factor solution retained the greatest number of items and resulted in the most parsimonious and readily interpretable factor structure.

Item loadings of .40 were considered significant, which is more conservative than the traditional .30 cutoff and results in stronger factors. Only Item 14 (Is uncooperative) loaded on more than one factor, and two items did not load significantly on any of the four factors (Item 6: Refuses to speak; Item 7: Says he or she feels blue or depressed). The first factor had 11 items, identified as Negativity/Agitation (see Table I), with an internal consistency coefficient of .86 and accounting for 41.2% of the variance. The second factor of 8 items, labeled Amiability, attained an internal consistency coefficient of .79 and amounted for 26.3% of the variance. The third factor with four items was named Dysphoria, with internal consistency at .68 and 19.9% of the variance. The final factor was identified as Noncompliance, with four items, an internal consistency of .68, and 12.5% of the variance.

No significant differences were found in any of the factor scores for gender, age group (younger than 8 vs. older than 8), ethnicity, family composition, chronicity of illness, or diagnosis. Moreover, factor scores were not correlated with SES, prior hospitalizations, or duration of illness. Only the Negativity/Agitation factor score correlated significantly with age ( $r = -.20, p \leq .01$ ), again with younger children receiving higher ratings.

Table I. Factors and Item Loadings for BUMP-R-Hospital

Item	Factor			
	1	2	3	4
<b>Factor 1. Negativity/agitation (<math>M = 10.62, SD = 6.72</math>)</b>				
Demanding	.72	.04	-.16	.20
Stubborn, negativistic	.71	.08	-.02	.20
Becomes upset easily	.65	.14	.22	-.06
Is irritable or grouchy	.65	.12	.17	-.02
Is impatient	.64	-.04	.00	.03
Gets angry	.59	.03	.18	-.04
Is uncooperative	.58	.26	.08	.40
Manipulative	.55	-.10	-.13	.29
Clinging, needs lots of reassurance	.53	.08	.31	.02
Complains	.51	.06	-.03	-.14
Cries	.45	.12	.36	.01
<b>Factor 2. Amiability (<math>M = 10.56, SD = 6.03</math>)</b>				
Tries to be friendly	.25	.67	.14	-.12
Accepts advice or instructions easily	.29	.64	-.13	.16
Pleasant to be with	.24	.64	.12	.02
Laughs or smiles at funny comments or events	.05	.56	.30	-.11
Shows interest in recovery (takes initiative)	.04	.55	.02	.08
Starts conversation	-.03	.54	.20	-.09
Does what he or she is told	.23	.49	-.28	.28
Able to ask for help	-.14	.40	.02	.14
<b>Factor 3. Dysphoria (<math>M = 3.10, SD = 2.74</math>)</b>				
Looks depressed or sad	.16	.23	.71	-.03
Looks worried, tense	.19	.08	.68	-.02
Has sleep problems	.22	.11	.45	.01
Sleeps unless directed into activity	-.06	-.01	.43	.14
<b>Factor 4. Noncompliance (<math>M = 2.57, SD = 2.29</math>)</b>				
Has to be reminded what to do	.22	.17	.10	.67
Is incredibly passive	.12	.08	.33	.49
Has to be told to follow hospital routine	.33	-.04	-.10	.45
Is uncooperative	.58	.26	.08	.40
<b>Items without significant factor loadings</b>				
Refuses to speak	.30	.38	.25	-.06
Says he or she feels blue or depressed	.18	.18	.29	.02

The Behavioral Upset in Medical Patients-Revised designed by Saylor et al. (1987) appears to be a promising parent report measure for use with hospitalized children, with strong internal consistency and an interpretable factor structure. The rating scales involve the evaluation of the frequency of specific behaviors, not an interpretation of emotional distress. Moreover, this brief questionnaire does not require lengthy direct observation by a trained professional and may serve as a useful clinical tool. Given that consultation of pediatric psychologists often involves evaluation of a child's psychological adjustment to illness, assessment techniques appropriate for physically ill children are needed. Future investigation of the BUMP-R should evaluate the consistency of distress ratings over time as well as comparing scores of hospitalized children with outpatient pediatric samples in order to ascertain the specific effects of hospitalization. Correspondence between raters should also be explored, including inter-rater reliabilities between parents, children, and health personnel.

#### Footnote

1. All correspondence should be sent to Christina M. Rodriguez, Soiling Center for Developmental Disabilities, University of Tennessee-Memphis, 711 Jefferson Avenue, Memphis, Tennessee 38105.

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