The impact of parental psychological distress on child behavior issues in hospitalized children

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Abstract

Child hospitalization has a negative impact on both children and parents' psychological well-being. Although prior studies in the general context demonstrated a favorable link between parental psychological distress and child behavior problems, research in the hospital situation was restricted. The purpose of this study was to see if parental psychological distress has an effect on child behavior problems in hospitalized children in Indonesia. This cross-sectional study included 156 parents who were recruited from four pediatric wards using a convenience sampling method between August 17 and December 25, 2020. The Hospital Anxiety and Depression Scale and the Child Behavior Checklist 1.5-5 and 6-18 were utilized. Parental anxiety was found to be a significant predictor of increased total behavior issue, internalizing behavior, externalizing behavior, anxious/depressed, somatic complaints, and violent conduct in hospitalized children. Parental depression, on the other hand, was not related with any of the child behavior issue syndrome measures. The findings imply that identifying and treating parent anxiety early on is critical for preventing or reducing child behavior problems during hospitalization.

Introduction

Due to unfamiliar environment, physical restriction, daily routine changes, frightening procedures, and parent-child separation, hospitalization has a negative impact on child behavior problems.[1-3] Previous studies in most western and east Asian countries have found that hospitalized children had significant behavior problems during and following hospitalization.[4-7]

Parent psychological health is also an important aspect that influences the hospitalized child's behavior problems.[8] Facing uncertainty about child's illness and the prognosis, ineffective health care professional communication, alteration of parental role and alteration in child's appearance and behaviors were found to have an influence on parents' psychological distress during child hospitalization.[9,10] Researchers have found that parent psychological distress and child behavior problems have reciprocal relationships.[8] Although several studies among the chronically ill children staying at home have shown the positive relationships

between parent's psychological distress and child behavior problems,[11] the association of parent psychological distress with child behavior problems during hospitalization is still unknown.

Most of previous studies were not describing which behavior problem syndrome scale was influenced by parent's psychological distress. This study is the first to examine parent's psychological distress and its association with specific child behavior problem syndrome scales during child hospitalization.

Materials and Methods

This cross-sectional study was conducted from August to December 2020. A convenience sampling was used to recruit parent-child dyads from a public hospital in Jakarta, Indonesia. Participants were included in study if they were a parent (mother or father) who cared for a hospitalized child aged 2 to 12 years old for a minimum 24 hours, were able to read and write in Bahasa Indonesia.

Measurements

Child behavior problem

Behavior problems among hospitalized children was measured by using Child Behavior Checklist 1.5-5 (CBCL 1.5-5)[12] and Child Behavior Checklist 6-18 (CBCL 6–18)[13] which were rated by the parents. CBCL 1.5-5 was used for hospitalized children aged 2 to 5 years old, while CBCL 6-18 was for children aged 6 to 18 years old. In CBCL 1.5-5, 67 of 99 items were occupied, included to 7 syndrome subscales: emotionally reactive (9 items), anxious/depressed (8 items), somatic complaints (11 items), withdrawn (8 items), sleep problems (7 items), attention problems (5 items) and aggressive behavior (19 items). The rest of 32 items were excluded since those are oriented to Diagnostic and Statistical Manual of Mental Disorders (DSM) which were used for the classification of mental disorder, not included to syndrome scales. In CBCL 1.5-5, the internalizing behavior was a group of syndrome scales, consisting of emotionally reactive, anxious/depressed, somatic complaints, and withdrawn. The externalizing behavior included attention problem and aggressive behavior. The original version of CBCL 1.5-5 had a good validity by distinguishing the referred children with the nonrefered children ($p \leq 0.01$).[12] Indonesian version of CBCL 1.5-5 also had a good internal consistency, with the Cronbach's alphas ranged from 0.55 to 0.90.[13]

In CBCL 6-18, 97 of 120 items were used to measure the hospitalized child behavior. The rest of 17 items were for the classification of mental disorder. Six other items were not applicable for hospitalized children, including poor schoolwork, hangs around with others who get in trouble, runs away from home, steals outside home, truancy/skip school, and disobedient at school. The internalizing behavior in CBCL 6-18 consisted of anxious/depressed, somatic complaints and withdrawn, while externalizing behavior was a group of rule-breaking behavior and aggressive behavior. The reliability of the original version of CBCL 6-18 has been obtained, including the Cronbach's Alpha's of internal consistency ranged from 0.63 to 0.97, Pearson correlation coefficients of test-retest reliability ranged from 0.8 to 0.94, and Pearson correlation coefficients of the inter-rater (between parents) reliability ranged from 0.57 to 0.88.[13] In the currently version of CBCL 6-18, all the items significantly discriminated between referred and non-referred demographically similar children ($p \leq 0.01$).[13] In Indonesian version of CBCL 6-18, the internal consistency of the total problems score was 0.94. While the eight syndrome scales' Cronbach's alphas ranged from 0.61 to 0.87. Six of them (withdrawn, somatic complaints, anxious, attention problems, rule breaking behavior, and aggressive behavior) had high internal consistency, whereas others (social problems and thought problems) had the Cronbach's alpha <0.71.[15] For each item, parents circled 0 if the description was not true for their child, circled 1 if the description was somewhat or sometimes true, circled 2 if the description was very true or often true. The raw scores of each syndrome were sum up. A higher total problem score reflects greater severity of symptoms in a child base on the parent's report. Child behavior problem during hospitalization was reported by parent at least after 24 hours of admission to the pediatric ward only, not the time from the emergency unit. Parents were asked to fill the questionnaire directly after one day of child's hospital stay.

Parent's psychological distress

Parent's psychological distress during child hospitalization was measured by using a 14-item instrument, which was first developed by Zigmond and Snaith,[16] named Hospital Anxiety and Depression Scale (HADS). This instrument assessed the level of depression (7 questions) and anxiety (7 questions). Responses were rated on the 4-point Likert's scale, with 3 as "most of the time," 2 as "a lot of time," 1 as "occasionally," and 0 as "not at all." A total score is obtained by summing all the scores, ranged from 0-21, for anxiety and depression, separately. Higher scores reflect more severe symptoms of anxiety or depression. The sum scores were categorized into three levels of anxiety and depression, respectively: normal (0–7), borderline abnormal (8–10), and abnormal (11–21). The Indonesia version of HADS, which has been developed by Rudi, Widyadharma and Andyana[17], has a good reliability with Kappa coefficient of 0.706 for anxiety scale and 0.681 for depression scale.

Data analysis

Descriptive statistics and bivariate analysis were employed to analyze the associations between the independent and dependent variables. Since the dependent variable data were not normally distributed, the generalized linear model (GLM) was applied to predictors to test the assumptions ($p<0.05$). Data analysis was performed by using SPSS software version 25. Using the T-score of child behavior problem was to obtain the age-standardized score and to combine the data from different age of children for later analysis.

Results

Sample

Of the 167 subjects who agreed to participate and fill in the questionnaire, 156 were succeed to complete the data. The missing data due to the incompleteness of the items filled. Table 1 shows the majority of the participants were the mother (n=126; 80.8%). The mean age was 36.5 years old (SD=7.2) and 51.9% (n=81) of them had at least a senior high school education. For the children, 53.2% (n=83) were the boys and 62.2% (n=97) were hospitalized due to the chronical illness. The mean age was 5.69 (SD=3.1), with the majority of them were schoolers (6-12 years old; n=75; 48.1%). The average length of hospital stay was 4.4 days (SD=3.3). Only 18.4% (n=29) of children were first-time hospitalization (Table 1).

Child behavior problem

Table 2 shows that toddlers and preschoolers had significant higher mean rank of T scores for aggressive behavior, externalizing behavior, and internalizing behavior than schoolers. Whereas schoolers had significant higher mean rank of T scores for attention problem than toddlers and preschoolers (Table 2).

Parent psychological distress

Table 3 shows that 20.5% of parents reported the borderline abnormal of anxiety syndrome and 18.6% have the abnormal level of anxiety syndrome during their child hospitalization. Further, 18.6% of parents reported the borderline level of depression syndrome and 10.9% of them felt abnormal level of depression syndrome during their child hospitalization (Table 3).

The association between socio-demographic characteristics and child behavior problem

Overall, child's gender, child illness chronicity, and parent's education were associated with child behavior problems. Child's gender was associated with the externalizing behavior but no other behaviors. The hospitalized boys had more externalizing behavior compared to hospitalized girls (mean rank=85.4 *vs.* 70.6; U=-2.049; p=0.040). Child's illness chronicity was associated with attention problem and aggressive behavior. The hospitalized children with acute illness had more attention problem compare to hospitalized children with chronical illness (mean rank=89.1 *vs.* 72.1; U=-2.298; p=0.022). In contrast, hospitalized children with chronical illness had more aggressive behavior than hospitalized children with acute illness (mean rank=84.3 *vs.* 68.9; U=-2.075; p=0.038). Moreover, parent's education was associated with anxious/depressed, somatic complaints, internalizing behavior, and total behavior problems. The hospitalized children with parents who had completed the senior high school education had the highest scores of anxious/depressed (H=8.638, p=0.013), somatic complaints (H=7.890, p=0.019), internalizing behaviors (H=6.271, p=0.043), and total behavior problems (H=7.309, p=0.026) compared to those children with higher educated parents (university and above) and lower educated parents (junior high school and below).

The associations of parent's psychological distress with child behavior problem

In the model of internalizing behavior (likelihood ratio χ 2=38.274, p<0.001), parent's anxiety, child's age, and the length of hospital stays were associated with children's internalizing behavior. In the model of externalizing behavior (likelihood ratio χ 2=51.776, p<0.001), parent's anxiety, child's age, and child's gender were associated with children's externalizing behavior. Further, in the model of total behavior problem (likelihood ratio χ 2=32.765, p=0.003), parent's anxiety, child's gender, and parental education were associated with children's total behavior problems. In most of the other behavior syndrome scales' models, parent's anxiety was associated with child's anxious/depressed, somatic complaints, and aggressive behavior. Moreover, parent's anxiety was not associated with attention problem and withdrawn. However, parent depression was also not associated with any child behavior problem syndrome scales.

Table 1. Demographic characteristics of parents and clinical characteristics of children (n=156).

Variables	*n*	%
Parents (*n*=156)		
Gender		
Mother	126	80.8
Father	30	19.2
Educational level[a]		
University and above	39	25.0
Senior high school	81	51.9
Junior high school and below	36	23.1
Children (*n*=156)		
Gender		
Girl	73	46.8
Boy	83	53.2
Age range		
Toddlers (2 to 3 years)	48	30.8
Preschoolers (4 to 5 years)	33	21.2
School ages (6 to 12 years)	75	48.1
Medical diagnoses category		
Acute illnesses	59	37.8
Chronic illnesses	97	62.2
Frequency of previous hospitalization		
Never	29	18.6
Once and twice	66	42.3
3 times or more	61	39.1

Variables	Mean (SD)	Median	Minimum-Maximum
Parent's age	36.46 (7.22)	34.50	20 – 56
Child's age	5.69 (3.08)	5	2 – 12
Length of hospital stay	4.40 (3.32)	3	2 – 25

[a]University; higher education; senior high school; compulsory education; junior high school or below; lower education.

Discussion

In this study, children aged 2 to 12 years with various medical diagnoses during hospitalization had the pronounced behavior problems especially in internalizing behavior (and the syndrome scales included) across all age ranges and externalizing behavior (and the syndrome scales included) in toddlers and preschoolers. In Indonesian children population, the normative score of child behavior problems measured by CBCL has not been established yet. However, the previous studies that used CBCL in Indonesia have reported the t-score values of all child behavior subscales among physically healthy children with normal child development status.[15,17]

The results of total behavior problem raw scores of hospitalized toddlers and preschoolers in this current study were higher compared to the results in the Indonesian healthy children aged 2 to 5 years in the study by Irwanto *et al*.[18] Moreover, the raw scores of all syndrome scales in our sample of hospitalized children were higher than the healthy children have in the study by Irwanto *et al*.[18] These findings indicate that this study's sample of hospitalized children aged 2 to 5 years had pronounced behavior problems in all syndrome scales compared to the healthy children sample in Indonesia.

Moreover, the raw scores of total behavior problem and all subscales of internalizing behaviors among the hospitalized children aged 6 to 12 years in this current study were higher than Indonesian healthy children in the study by Hartini *et al*.[15] However, the raw scores of aggressive behaviors and externalizing behaviors among hospitalized children aged 6 to 12 in this study were similar to the healthy children in Hartini *et al*.[15] study. Hospitalized school age children in this current study showed more internalizing behaviors but not externalizing behaviors than their healthy peers. These findings suggested that the older children did not demonstrate the externalizing behavior, both aggressive and rule-breaking behavior anymore, compared to the younger hospitalized children.

The findings of child behavior problems among hospitalized school-age children in this current study were similar to the results in the studies by Rukabyarwema *et al*.[6] and Yeh and Wang.[7] Those two studies showed that hospitalized school-age children had more internalizing behavior problems but not externalizing behavior problems during the hospitalization. However, the findings among toddlers and pre-schoolers were not completely consistent with previous studies. The new findings of behavior problem in hospitalized toddlers and preschoolers in this current study's sample are that they had pronounced emotionally reactive, somatic complaints, attention problem, aggressive behavior and externalizing behavior problem which were not existed in previous studies. These different findings might be due to the different length of hospital stay between this study and previous studies. Kennedy *et al.* study[2] had longer average of length of hospital stay (7 days) than this current study (the average of 4 days). It is possible that the longer the time for young children (2 to 5 years) to have hospital stress, the more they could well response, which in turn to decrease their aggressiveness and be replaced in more internalizing behavior. However, the study by Markovic *et al*.[5] did not provide information about the average length of hospital stays. Therefore, it is unclear whether the different findings were affected by the length of hospital stays.

Moreover, the difference in the child's medical issues might resulted in different outcomes of child behavior problems

Table 2. The type and level of child behavior problems during hospitalization.

Syndrome scales	Raw scores						T scores			Z/H[a]	*p*[a]
	Toddlers		Preschoolers		Schoolers		Toddlers	Preschoolers	Schoolers		
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean rank	Mean rank	Mean rank		
Emotionally reactive	4.96 (3.38)	0 – 12	6.16 (3.64)	0 – 15	-	-	37.54	46.03	-	-1.604	.109
Anxious/depressed	5.60 (2.82)	0 – 14	6.72 (3.39)	1 – 14	5.84 (3.64)	0 – 17	72.77	84.33	79.60	1.379	.502
Somatic complaints	4.38 (3.13)	0 – 14	5.94 (4.74)	0 – 19	5.63 (3.60)	0 – 16	69.06	80.73	83.56	3.142	.208
Withdrawn	2.98 (2.60)	0 – 11	3.59 (3.74)	0 – 15	3.27 (2.18)	0 – 10	73.44	78.26	81.85	1.035	.596
Attention problems	2.42 (1.69)	0 – 6	2.50 (2.02)	0 – 9	4.03 (2.99)	0 – 13	66.93	66.91	91.01	11.281	.004
Aggressive behavior	8.00 (5.38)	0 – 22	10.53 (6.41)	0 – 30	6.47 (4.56)	0 – 25	82.31	102.52	65.52	15.954	<.001
Rule-breaking behavior	-	-	-	-	1.79 (1.97)	0 – 11	-	-	50	-	-
Sleep problems	3.96 (2.41)	0 – 12	5.03 (2.98)	0 – 12	-	-	36.94	46.91	-	-1.891	.059
Social problem	-	-	-	-	4.31 (2.77)	0 – 14	-	-	50	-	-
Thought problem	-	-	-	-	1.48 (2.38)	0 – 13	-	-	50	-	-
Internalizing behavior	17.92 (9.82)	0 – 37	22.41 (13.74)	3 – 60	14.73 (7.38)	0 – 41	81.86	95.00	69.09	7.936	0.019
Externalizing behavior	10.42 (6.52)	0 – 28	13.03 (8.06)	0 – 39	8.25 (6.18)	0 – 36	88.91	104.70	60.31	25.881	<0.001
Total behavior problem	32.29 (17.50)	0 – 69	40.50 (23.43)	2 – 110	32.89 (18.76)	0 – 103	75.75	92.64	74.04	4.142	.126

[a]The Kruskal Wallis H test was used to compare the difference among three age groups.

Table 3. The parent's psychological distress during child hospitalization.

	Mean (SD)	Range	Levels		
			Normal	Borderline abnormal	Abnormal
Anxiety	6.57 (4.12)	0 – 16	60.9% (n=95)	20.5% (n=32)	18.6% (n=29)
Depression	6.01 (3.49)	0 – 16	70.5% (n=110)	18.6% (n=29)	10.9% (n=17)

between the current study and previous studies. In the study by Markovic *et al.*,[5] most of the children were being hospitalized due to the acute illnesses such as diarrhea, pneumonia, caught, acute otitis media, and the urinary tract infection, while the most children were being hospitalized of chronical illnesses (62.2%) in this current study. However, the study by Kennedy *et al.*[2] had the various medical diagnoses which was not clear about its prevalence. Therefore, the medical diagnoses prevalence issue was also unclear as the factor of the different findings of hospitalized child behavior problems.

In this current study, the parent's anxiety score was similar to a study in China during the COVID-19 epidemic and a study in non-pandemic situation in the United State.[19] Around 39% of parents in this current study reported the status of the borderline abnormal and abnormal of anxiety, while in China, 42% parents were in anxiety status. Further, Indonesian parents had lower level of depression compared to parents in China (mean=7.7, SD=2.8) during the COVID-19 pandemic.[20] Around 30% of Indonesian parents reported depression status during child hospitalization in the context of COVID-19 pandemic, which was a lower rate than the parents in China (48%). However, this current study's outcome of parent's depression had higher scores compared to parent's depression during child hospitalization of Jones *et al.*[19] study in a non-pandemic situation in the United State (mean=3.5, SD=2.9).

In line with the previous study in Malaysia,[8] the results of the present study partially support the hypothesis that greater parent's psychological distress was associated with more child behavior problems. Parent's anxiety was associated with child's somatic complaints, anxious/depressed, aggressive behavior, internalizing behavior, externalizing behavior and total behavior problems; but not withdrawn and attention problem. Parent's depression was not associated with any child behavior problems.

Further, parent's anxiety was found to be the predictor in the Generalized Linear Model, which was expected to increase child's anxious/depressed, somatic complaints, aggressive behavior, internalizing behavior, externalizing behavior, and total behavior problem. The more anxiety the parents feel during child hospitalization, the greater child behavior problems during hospitalization are expected to appear. The possible explanation is that the anxious parents may influence how they treat their children and transfer their uncomfortable feelings to the children. For example, the hospitalized children may increase their anxious/depressed level when they feel the parent's fears, worries, or state of feeling apprehensive.

Conclusions

To sum up, this current study showed more pronounced behavior problems among hospitalized children aged 2 to 12 years old compared to previous studies in the sample of similar age ranges from western and east Asia countries. The potential rationales might be due to the different time points of measurements, different length of hospital stays average, various child's medical diagnoses, and different perspectives of parents facing their children's behavior during hospitalization. Further, this study concluded that parent's anxiety during child hospitalization had a significant effect on almost all behavior problem syndrome scales and total behavior problems of children during hospitalization in Indonesia. However, the parent's depression had no significant association to behavior problems of children in this study sample.

This current study's findings may contribute to the identification of child behavior problem during hospitalization among children aged 2 to 12 years old. In this study sample, the child behavior problems during hospitalization were pronounced in all syndrome scales for toddlers and preschoolers. However, the school age children had only the internalizing behavior. Moreover, findings of the association between parent's psychological distress and child behavior problem during hospitalization in this study sample can add to the existing knowledge by highlighting the specific dimension of parent's psychological distress, parent's anxiety, as the significant predictor of increasing behavior problem syndrome scales among hospitalized children. Therefore, the intervention targeting in reducing parent's anxiety may be the possible to mitigate child behavior problems during hospitalization. Future study is needed to identify the effective strategies to decrease parent's anxiety while the child is hospitalized.

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