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Prevalence, Risk Factors, and Pediatrician Awareness of Infant Dyschezia in Indonesia

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ABSTRACT

Purpose: This study aimed to evaluate the prevalence and risk factors of infant dyschezia as well as pediatrician awareness regarding this disease in Indonesia.
Methods: This is a two-part cross-sectional study, which was divided into study A and B. Study A: Parents whose infants were under 9 months old and attended well-baby clinics were recruited at two randomly selected primary health centers. Parents also provided information on the infant's previous medical history, and socio-demographic and family details. The Rome IV criteria was translated and validated to be used for diagnosis of infant dyschezia. Study B: Randomly selected pediatricians were surveyed by using a questionnaire to evaluate their knowledge regarding infant dyschezia.
Results: The prevalence of infant dyschezia based on the result of this study was 11.8%. Three risk factors had a significant relationship with infant dyschezia i.e., the number of children in the family (odds ratio [OR], 5.619; 95% confidence interval [CI], 2.194–14.390; $p<0.001$), complementary food diet (OR, 4.238; 95% CI, 1.902–9.443; $p<0.001$), and social-emotional disturbance (OR, 5.670; 95% CI, 2.550–12.609; $p<0.001$). The percentage of pediatricians correctly diagnosed infant dyschezia was 71.5%. Most pediatricians agreed that they did not perform any diagnostic testing (79.7%) and only provided education in cases of infant dyschezia (58.5%).
Conclusion: The prevalence of infant dyschezia identified in our study was higher than that in other neighboring Asian countries, with the highest prevalence observed in infants 7–9 months old. Being an only child, receiving complementary food diet, and sociao-emotional disturbances were significant risk factors of infant dyschezia.

Keywords: Dyschezia; Pediatricians; Prevalence; Risk factors; Rome IV criteria; Awareness

INTRODUCTION

Functional gastrointestinal disorders (FGIDs) are common in children of all ages, including infants, and comprise of a wide range of chronic and recurrent gastrointestinal symptoms that cannot be attributed to structural or biochemical abnormalities [1]. FGIDs especially during infancy are the most common reasons for caregivers to visit health care facilities [2,3]. Data regarding prevalence and risk factors of infant dyschezia are still lacking compared to other FGIDs.

Conflict of Interest
The authors have no financial conflicts of interest.

Moreover, pediatrician awareness in Indonesia regarding the diagnosis and management of infant dyschezia also remains unknown. Inaccurate diagnosis and management of this disease may result in the expense of immense cost with barely any positive outcomes for both patients and clinicians [4]. The current Rome criteria IV defines infant dyschezia as straining and crying for at least 10 minutes before successful passage of soft stools in an infant <9 months old without any other health problems.

To date, no study has reported the prevalence and risk factors of infant dyschezia in Indonesia based on the latest Rome criteria. This study aimed to evaluate the prevalence and risk factors of infant dyschezia as well as pediatrician awareness of this disease in Jakarta, Indonesia.

MATERIALS AND METHODS

Overall study design

This was a two-part cross-sectional study, which was divided into study A and B. Study A was designed to investigate the prevalence and possible risk factors of infant dyschezia. Study B was intended to assess pediatrician awareness in Indonesia regarding infant dyschezia. This study has received ethical clearance from Ethical Committee Faculty of Medicine Universitas Indonesia number KET-1179/UN2.F1/ETIK/PPM.00.02/2020. Writtern informed consent was obtained from each respective parents.

Prevalence and risk factors of infant dyschezia (study A)

Parents whose infants were <9 months old and attended well-baby clinics were recruited at two randomly selected primary health centers in Jakarta between October to November 2020. All participants provided informed consent to participate in this study. Parents with a baby <9-month old with a birth weight of at least 2,500 g and carried to full term were included. Parents with a baby with congenital syndrome, long-term metabolic or neurologic diseases, history of congenital or acquired gastrointestinal motility diseases, and cow's milk allergy were excluded.

The parents also provided information on the infant's previous medical history, and socio-demographic and family details. The risk factors included in this study were infant's age, sex, onset of first meconium, current diet, history of hospitalization, socio-emotional status, and the parents' number of children, age, education levels, occupations, and income.

The Rome IV FGIDs Questionnaire for Infants and Toddlers was translated and validated in Indonesian language and approved by the Rome Foundation to be used as diagnostic tool for infant dyschezia in this study. Questionnaire for infant dyschezia was adapted from Parent-report form Rome IV Diagnostic Questionnaire for Pediatrics FGIDs for ages 0–3 years. The questionnaire was then translated to Indonesian language through several processes, such as forward translation, reconciliation, backward translation, cognitive debriefing, proofreading, and approval as mentioned on the official Guidelines for the translation of Rome Foundation Research and Diagnostic Adult and Pediatric Questionnaires. Prior to be used on this study, the translated questionnaire was tested on 30 participants and had a 100% agreement level among participants with good validity (medium to strong correlation on Pearson's test on each question) and alpha Cronbach's test of 0.73.

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Baby Pediatric Symptom Checklist (BPSC) was translated and validated into Indonesian language and approved by the Survey of Well-being of Young Children organization to be used in this study. BPSC is a 12-item screening tool to identify socio-emotional disturbances in children aged 0–18 months. The education level was divided into three categories i.e., low, middle, and high education which were defined as last graduated from junior high school, senior high school, and university, respectively. The occupation level was categorized based on the definition set by the Ministry of Manpower Republic of Indonesia. Income level was classified based on minimum wage regulation in Jakarta, Indonesia.

Knowledge of pediatricians regarding infant dyschezia (study B)

Study B was performed among pediatricians in Indonesia using a questionnaire to assess their knowledge regarding infant dyschezia. Participants were randomly selected for this study based on their registered number on Indonesian Pediatric Society. The questionnaire comprised three multiple choice questions; one question for each diagnosis, diagnostic test, and management of infant dyschezia. Question for diagnosis was in the form of case illustration, which was based on diagnostic criteria for infant dyschezia according to Rome IV criteria. For questions regarding diagnostic tests and management, pediatricians were allowed to choose more than one option. This questionnaire was formulated and then reviewed by pediatric gastrohepatoenterology consultants in the Department of Child Health, Faculty of Medicine Universitas Indonesia. Twenty pediatricians were asked to fill out the questionnaire for a validity and reliability test. The questionnaire was ready to be distributed once it had passed both tests.

Data analysis

During questionnaire validation, validity was assessed using Pearson's Correlation and reliability was calculated using internal consistency test (alpha Cronbach's coefficient).

Statistical data was collected and analyzed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Co.). Bivariate analysis was evaluated using chi-square test or multinomial logistic analysis as appropriate. Multivariate analysis was performed using multinomial logistic regression analysis. Data were presented as odd ratio with 95% confidence interval (95% CI). A *p*-values <0.05 were considered statistically significant.

RESULTS

Study A

1. Characteristics of participants

Three hundred and twelve participants were recruited in study A. Based on the data obtained, the age distribution of the participants was balanced between the 0–3, 4–6, and 7–9 months. The proportion of sex among participants was also similar. Most participants were only children (51.3%), with most fathers and mothers between 21–30 years of age (44.6% and 57.1%, respectively). Most fathers had middle level educational background (49%) and job (54.5%). Most mothers also had a middle level education background (53.5%) but most of them were not working (54.2%). Most families had income above the minimum wage i.e., middle (40.4%) and high (20.5%) income (**Table 1**).

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Table 1. Sociodemographic characteristics of the participants

Sociodemographic characteristics	Value (n=312)
Sex	
Male	158 (50.6)
Female	154 (49.4)
Age	
0–3 mo	100 (32.0)
4–6 mo	111 (35.6)
7–9 mo	101 (32.4)
Number of children in the family	
Only child	160 (51.3)
2–3 children	123 (39.4)
≥4 children	29 (9.3)
Father's age	
<20 yr	4 (1.3)
21–30 yr	139 (44.6)
31–40 yr	138 (44.2)
>40 yr	31 (9.9)
Father's education level	
Low level education	27 (8.7)
Middle level education	153 (49.0)
High level education	132 (42.3)
Father's occupation	
Not working	4 (1.2)
Low level education job	37 (11.9)
Middle level education job	170 (54.5)
High level education job	101 (32.4)
Mother's age	
<20 yr	17 (5.4)
21–30 yr	178 (57.1)
31–40 yr	107 (34.3)
>40 yr	10 (3.2)
Mother's education level	
Low level education	32 (10.3)
Middle level education	167 (53.5)
High level education	113 (36.2)
Mother's occupation	
Not working	169 (54.2)
Low level education job	5 (1.6)
Middle level education job	72 (23.1)
High level education job	66 (21.1)
Family income	
Low income	122 (39.1)
Middle income	126 (40.4)
High income	64 (20.5)

Values are presented as number (%).

2. Stool characteristics and prevalence of infant dyschezia

Most infants in this study had a defecation pattern of 2–3 times/day at the age of 0–3 months (43.0%), and once daily at the age of 4–6 (37.8%) and 7–9 months (35.6%). Very soft/mushy stools were the most reported stool consistency for infants aged 0–3 (44.0%) and 4–6 months (36.9%), while the majority of infants aged 7–9 months had stools that were neither too hard nor soft (moderate stools; 47.5%). The prevalence of infant dyschezia among infants aged 0–9 months in this study was 11.8%, with the highest prevalence observed at 7–9 months (17.8%) (**Table 2**).

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Table 2. Stool characteristics of the participants

Stool characteristics	Age		
	0–3 mo old (n=100)	4–6 mo old (n=111)	7–9 mo old (n=101)
Defecation frequency			
<2 times/wk	10 (10.0)	14 (12.6)	7 (7.0)
3–6 times/wk	16 (16.0)	25 (22.5)	27 (26.7)
Once daily	13 (13.0)	42 (37.8)	36 (35.6)
2–3 times daily	43 (43.0)	27 (24.4)	28 (27.7)
>3 times daily	18 (18.0)	3 (2.7)	3 (3.0)
Stool consistency			
Hard or very hard	0 (0.0)	1 (0.9)	3 (3.0)
Moderate	28 (28.0)	40 (36.0)	48 (47.5)
Very soft/ mushy	44 (44.0)	41 (36.9)	20 (19.8)
Watery with food residue	2 (2.0)	1 (0.9)	2 (2.0)
Very watery	16 (16.0)	10 (9.9)	0 (0.0)
Inconsistent, depending on food	10 (10.0)	18 (16.2)	28 (27.7)
Infant dyschezia			
Yes	10 (10.0)	9 (8.1)	18 (17.8)
No	90 (90.0)	102 (91.9)	83 (82.2)

Values are presented as number (%).

3. Risk factors analysis

Bivariate analysis was performed to assess each independent variable in association with infant dyschezia. Of the 15 variables analyzed, 11 were statistically significant while the other 4 (sex, father's age, mother's age, and first onset of meconium) were not (**Table 3**). Variables with *p*-value of <0.20 were then included in multivariate regression analysis to ascertain the effects of those variables on the occurrence of infant dyschezia by using backward linear regression stepwise method. At the end of the multivariate analysis, three variables had a significant relationship with infant dyschezia. Those variables were the number of children in the family (odds ratio [OR], 5.619; 95% CI, 2.194–14.390; $p<0.001$), complementary food diet (OR, 4.238; 95% CI, 1.902–9.443; $p<0.001$), and social-emotional disturbance (OR, 5.670; 95% CI, 2.550–12.609; $p<0.001$) (**Table 4**). Parents with an only child were 5.619 times more likely to report the occurrence of infant dyschezia. Moreover, infants who received a complementary food diet or had social-emotional disturbances were 4.238 and 5.670 times more likely to be reported with infant dyschezia, respectively. The logistic regression model was statistically significant compared to constant-only model, $X^2(3)=52.875$ ($p<0.05$). However, Hosmer-Lemeshow test were not statistically significant ($p>0.05$), which indicated that the actual number of cases were not significantly different from the cases predicted by the model. This model explained 30.1% (Nagelkerke R^2) of the variance in infant dyschezia, and correctly predicted 88.8% of cases.

Study B

1. Knowledge of pediatricians

All 123 participants in study B were selected by simple randomization. Of those, most pediatricians had been practicing for >10 years (37.4%). The percentage of pediatricians correctly diagnosed infant dyschezia was 71.5%, while others classified infant dyschezia as constipation, abdominal colic, cow's milk allergy, and Hirschsprung's disease. Most pediatricians agreed that they did not perform any diagnostic testing (79.7%) and only provided education in cases of infant dyschezia (58.5%). Pre-/probiotic therapy was administered by 28.5% of pediatricians. Pediatricians who had practiced >10 years were 9.7 times more likely to misdiagnose infant dyschezia than those who had practiced for <10 years (OR, 9.7; 95% CI, 2.05–45.5; $p=0.004$) (**Table 5**).

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Table 3. Results of bivariate analysis on several variables of infant dyschezia

Variable	Infant dyschezia			OR (95% CI)	*p*-value
	Yes	No	Total		
Sex					
Male	17	141	158	0.808 (0.406–1.608)	0.543
Female	20	134	154		
Age					0.072
0–3 mo	10	90	100	0.512 (0.224–1.173)	0.114
4–6 mo	9	102	111	0.407 (0.174–0.953)	0.380
7–9 mo	18	83	101	Reference	
No. of children in the family					0.020
Only child	30	130	160	3.115 (0.702–13.826)	0.135
2–3 children	5	118	123	0.572 (0.105–3.107)	0.518
≥4 children	2	27	29	Reference	
Father's age					0.961
<20 yr	0	4	4	0.00 (0.00–0.00)	0.999
21–31 yr	18	121	139	1.388 (0.382–5.041)	0.618
31–40 yr	16	122	138	1.224 (0.334–4.490)	0.760
>40 yr	3	28	31	Reference	
Father's education level					0.005
Low level education	3	24	27	0.535 (0.149–1.918)	0.337
Middle level education	9	144	153	0.268 (0.120–0.596)	0.010
High level education	25	107	132	Reference	
Father's occupation					0.038
Not working	0	4	4	0.00 (0.00–0.00)	0.999
Low level education job	6	31	37	0.835 (0.305–2.286)	0.726
Middle level education job	12	158	170	0.328 (0.152–0.708)	0.005
High level education job	19	82	101	Reference	
Mother's age					
<20 yr	3	14	17	Reference	0.823
21–31 yr	23	155	178	0.692 (0.185–2.596)	0.586
31–40 yr	11	96	107	0.535 (0.133–2.156)	0.379
>40 yr	0	10	10	0.00 (0.00–0.00)	0.999
Mother's education level					0.010
Low level education	2	30	32	0.276 (0.061–1.242)	0.093
Middle level education	13	154	167	0.349 (0.168–0.727)	0.050
High level education	22	91	113	Reference	
Mother's occupation					0.066
Not working	15	154	169	0.362 (0.164–0.800)	0.012
Low level education job	1	4	5	0.929 (0.096–8.982)	0.949
Middle level education job	7	65	72	0.400 (0.150–1.063)	0.066
High level education job	14	52	66	Reference	
Family Income					0.025
Low income	12	110	122	0.390 (0.168–0.903)	0.028
Middle income	11	115	126	0.342 (0.145–0.805)	0.014
High income	14	50	64	Reference	
First onset of meconium					0.211
Uncertain	7	74	81	0.347 (0.106–1.140)	0.081
<24 hr	24	179	203	0.492 (0.181–1.334)	0.163
>24 hr	6	22	28	Reference	
History of hospitalization					
Never	35	272	307	0.193 (0.031–1.195)	0.077
1–2 times	2	3	5		
Diet					0.005
Breastmilk	9	122	131	0.273 (0.120–0.618)	0.002
Formula milk	1	19	20	0.195 (0.250–1.531)	0.120
Breastmilk+formula milk	4	49	53	0.302 (0.099–0.923)	0.036
Complementary foods	23	85	108	Reference	
Complimentary foods					
Yes	23	85	108	3.672 (1.802–7.484)	<0.001
No	14	190	204		
Social/emotional disorders					
Yes	21	62	83	4.509 (2.219–9.164)	<0.001
No	16	213	229		

OR: odds ratio, CI: confidence interval.

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Table 4. Results of multiple logistic regression analysis on several variables of infant dyschezia

Variable	b	SEb	Wald's X^2	OR (95% CI)	*p*-value
No. of children in the family					
Only child	1.726	0.480	12.945	5.619 (2.194–14.390)	<0.001
More than 1 child					
Complimentary foods					
Yes	1.444	0.409	12.480	4.238 (1.902–9.443)	<0.001
No					
Social/emotional disorders					
Yes	1.735	0.408	18.113	5.670 (2.550–12.609)	<0.001
No					
Constant	−4.096	0.621	43.497		

SE: standard deviation, OR: odd ratio, CI: confidence interval.
Hosmer-Lemeshow test ($p>0.05$), $X^2(3)=52.875$ ($p<0.05$) with 88.8% accuracy, Nagelkerke R^2 30.1%.

Table 5. Characteristics and pediatrician awareness regarding infant dyschezia

Characteristics and knowledge	Value (n=123)
Years of practicing (yr)	
<5	42 (34.1)
5–10	35 (28.5)
>10	46 (37.4)
Diagnosis of infant dyschezia	
Correct	88 (71.5)
Wrong (n=35)	35 (28.5)
Diagnosed as functional constipation	18 (51.4)
Diagnosed as abdominal colic	12 (34.3)
Diagnosed as cow's milk allergy	4 (11.4)
Diagnosed as Hirschsprung's disease	1 (2.8)
Diagnostic tools for infant dyschezia	
No need for additional testing	98 (79.7)
Abdominal ultrasonography	15 (12.2)
Barium enema	6 (4.9)
IgE test	3 (2.4)
Abdominal CT scan	1 (0.8)
Treatment for infant dyschezia	
Education for parents	72 (58.5)
Prebiotic or probiotic	35 (28.5)
Laxative	11 (8.9)
Pain medication	5 (4.1)

Values are presented as number (%).
IgE: immunoglobulin, CT: computed tomography.

DISCUSSION

The prevalence of infant dyschezia based on the result of this study was 11.8%, which was higher than that in other neighboring Asian countries. One multi-ethnic study in a well-baby clinic at Kuala Lumpur, Malaysia reported a very low prevalence of this disease, which was only 1.3% based on the Rome IV criteria [5]. Furthermore, a study based on the same criteria was conducted in Vietnam and similarly reported the low prevalence of infant dyschezia, which was only 0.9% with no discrepancy between rural and urban population [6]. However, a study by Gatcheco et al. [7] in the Philippines showed a prevalence of 16.6% among infants aged 0–6 months. These numbers are similar to that in developed countries, ranging from 2.4% to 11.6% in the US [3,8]. The discrepancy of reported prevalence may be due to different perception of parents regarding crying and straining prior to their infant's defecation. Another factor to be noted was the location of each study; studies conducted at non-well-baby clinics or hospitals may report higher prevalence as there was a possibility of selection

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bias in which mothers were more likely to report symptoms in the setting of non-well-baby health care facilities.

One multicenter cross-sectional stud by Chogle et al. [9] reported that the prevalence of infant dyschezia based on the Rome III criteria, which only included infants <6 months old, was 15%. However, when adjusted to the Rome IV criteria, which now included infants up to 9 months old, an additional 13% of those infants fulfilled the criteria for infant dyschezia [9]. This finding indicated that after age criteria was expanded from 6 to 9 months, more cases of infant dyschezia can be detected. Interestingly, our study observed a higher prevalence of infant dychezia among infants aged 7–9 months who would not have been diagnosed had Rome III criteria been used.

To date, few studies have reported the risk factors of infant dyschezia. Of the 14 risk factors evaluated in our study, three factors had a significant influence on the occurrence of infant dyschezia, including being an only-child, receiving a complementary feeding diet, and the presence of socio-emotional disorders based on BPSC.

A previous study reported that the prevalence of FGIDs in infants, based on parental reports, was higher in those who did not have any siblings [10]. Similar to the aforementioned study, this study demonstrated that being an only child in the family made infant dyschezia 5.6 times more likely to be reported compared to those with siblings (OR, 5.619; 95% CI, 2.194–14.390; p<0.001). This finding could be explained by increased attention (attention bias) towards the symptoms presented by the only child in the family [10].

Diet plays an important role on the occurrence of infant dyschezia. One study in Manila using Rome III criteria reported that participants who received a combination of breast milk and formula milk had higher risk (OR, 4.69; 95% CI, 1.96–11.24; p=0.003), and those who received only formula milk had an even higher risk (OR, 8.85; 95% CI, 4.17–19.00; p=0.020) of experiencing infant dyschezia compared to infants who received only breast milk [7]. However, our study utilized Rome IV criteria and, consequently, included 7-9-month-old infants who had received a complementary food diet. Based on our study, infants who received a complementary food had 4.2 times higher risk of experiencing infant dyschezia compared to infants who did not receive complementary foods (OR, 4.238; 95% CI, 1.902–9.443; p<0.001). Interestingly, higher prevalence of infant dyschezia was observed among infants in the 7–9 months age group compared to the other age groups, which further supported the theory that infant dyschezia is more likely to develop as infants begin to receive complementary food. The defecation process involves the coordination of pelvic muscles as well as simultaneous contraction of the abdominal muscles and relaxation of the anal sphincter [11]. When an infant is introduced to more solid food, the frequency of bowel movements and stool consistency adapts in a way that infant will defecate less often and with a thicker stool consistency. For infants who have not gotten used to the defecation process, changes in stool consistency will make them more difficult to pass the stool [11]. Thereby, based on the results of this study, we suggest the need for pediatricians to be more aware of the occurrence of infant dyschezia, especially among infants who start receiving complementary foods.

This study also observed that infants with socio-emotional disturbances were 5.6 times more likely to experience infant dyschezia (OR, 5.670; 95% CI, 2.550–12.609; p<0.001) than those without. However, this cross-sectional study cannot simply establish a causal

relationship between those variables, as the relationship of socio-emotional disturbance and infant dyschezia may be bidirectional. First, the occurrence of infant dyschezia triggers discomfort for the infant and consequently socio-emotional problems arise. A study by Uzun Çiçek et al. [12] demonstrated that infants with dyschezia had a higher risk of experiencing developmental and daily routines impairments, such as weight gain, irregular sleep patterns, and dysuria than those without. Furthermore, socio-emotional impairment in infants impede the learning of defecation process, which ultimately results in infant dyschezia.

The development of social and emotional skills in infants is closely related to the parent-child relationship. A close physical and emotional bonding between infants and caregivers (usually mothers) during the first year of life will provide a sense of security while also building emotional regulation and self-control skills in infants [13]. One study compared the psychosocial state of mothers whose babies suffered from infant dyschezia and those whose infants did not. Mothers of infants with dyschezia had significantly higher Brief Symptoms Inventory scores across all nine sections (somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideas, and psychoticism) [12]. This was due to the fact that mothers of infants with dyschezia had more social and economic struggles such as lower education, employment levels and income, more children, and lack of support from their partners in taking care of them. The association of infant dyschezia and the psychosocial state of the mother can be described in two ways. First, the incidence of infant dyschezia can be influenced by the mental health of the mother; therefore, attention should be paid to the psychological state of the mother. Moreover, dyschezia in infants may lead to anxiety and other negative emotions for the mother already experiencing physical and mental stress. This happens particularly if infant dyschezia occurrs repeatedly without any improvement after various therapies attempted by the mother [12].

Based on a study by Vandenplas et al. [2] who conducted a survey on pediatric medical professionals worldwide, 69% of them were aware of infant dyschezia while the rest classified it as part of the colic spectrum or functional constipation. In our study, pediatricians were surveyed regardless of their subspecialty and 71.5% of them were able to diagnose infant dyschezia precisely. Those who had practiced >10 years were more likely to misdiagnose infant dyschezia than those who had practiced for <10 years. The Rome III criteria as a diagnostic tool for FGIDs in children and toddlers was published in 2006, while the latest Rome IV criteria was introduced in 2016. It was very likely that pediatricians who graduated from specialist education more than 10 years ago were less familiar with the changes of the latest Rome criteria for children and toddlers, especially regarding the diagnosis of infant dyschezia. Most pediatricians in our study had practiced the appropriate management of infant dyschezia as they did not perform any additional diagnostic test (79.7%) and only provided education for parents (58.5%). Precise diagnosis and treatment for infant dyschezia is crucial to avoid the expense of enormous cost with almost no positive outcome as demonstrated by Dhroove et al. [4]. A total of 28.5% of pediatricians gave pre-/probiotic therapy for infant dyschezia. Probiotic therapy of *L. reuteri* had been shown to have a positive effect on peristalsis in infants with chronic constipation, although there was no improvement in stool consistency and crying episodes as well as no improvement of clinical symptoms for infantile colic [14]. Currently, there is no adequate beneficial evidence of the role of pre-/probiotics for infant dychezia. Hence, further studies are needed to evaluate the role of pre-/probiotics not only for infant dyschezia but also for other FGID.

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This study has some limitations First, it was a cross-sectional study. Therefore, causal effects between infant dyschezia and socio-emotional disturbances could not be determined. Second, we did not evaluate enough time frame to determine which variable occurred first in the participants. Third, participants in both studies were recruited from one area; hence, may not represent the whole population in Indonesia. Therefore, future multi-center studies, including infants from different regions of Indonesia are warranted. The strength of this study is the use of validated Rome IV questionnaire form to diagnose infant dyschezia, which effectively reduced the differences of perceptions among parents regarding this disease. Moreover, this questionnaire underwent a rigorous process of translation and testing before finally being approved by the Rome Foundation to be used in this study.

In conclusion, our study revealed that the prevalence of infant dyschezia in Jakarta, Indonesia was higher than that in other neighboring Asian countries, with the highest prevalence observed in infants 7–9 months of age. Being an only child, receiving a complementary food diet, and having socio-emotional disturbances are significant risk factors for infant dyschezia that pediatricians should be aware of.

REFERENCES

1. Rasquin A, Di Lorenzo C, Forbes D, Guiraldes E, Hyams JS, Staiano A, et al. Childhood functional gastrointestinal disorders: child/adolescent. Gastroenterology 2006;130:1527-37.
PUBMED | CROSSREF
2. Vandenplas Y, Abkari A, Bellaiche M, Benninga M, Chouraqui JP, Çokura F, et al. Prevalence and health outcomes of functional gastrointestinal symptoms in infants from birth to 12 months of age. J Pediatr Gastroenterol Nutr 2015;61:531-7. Erratum in: J Pediatr Gastroenterol Nutr 2016;62:516.
PUBMED | CROSSREF
3. Rouster AS, Karpinski AC, Silver D, Monagas J, Hyman PE. Functional gastrointestinal disorders dominate pediatric gastroenterology outpatient practice. J Pediatr Gastroenterol Nutr 2016;62:847-51.
PUBMED | CROSSREF
4. Dhroove G, Chogle A, Saps M. A million-dollar work-up for abdominal pain: is it worth it? J Pediatr Gastroenterol Nutr 2010;51:579-83.
PUBMED | CROSSREF
5. Chew KS, Em JM, Koay ZL, Jalaludin MY, Ng RT, Lum LCS, et al. Low prevalence of infantile functional gastrointestinal disorders (FGIDs) in a multi-ethnic Asian population. Pediatr Neonatol 2021;62:49-54.
PUBMED | CROSSREF
6. Chia LW, Nguyen TVH, Phan VN, Luu TTN, Nguyen GK, Tan SY, et al. Prevalence and risk factors of functional gastrointestinal disorders in Vietnamese infants and young children. BMC Pediatr 2022;22:315.
PUBMED | CROSSREF
7. Puspitasari R, Gatcheco F. Prevalence and clinical profile of infant dyschezia among patients seen in selected health facilities in Metro Manila. J Gastrointest Dig Syst 2016;6 (3 Suppl):56.
CROSSREF
8. van Tilburg MA, Hyman PE, Walker L, Rouster A, Palsson OS, Kim SM, et al. Prevalence of functional gastrointestinal disorders in infants and toddlers. J Pediatr 2015;166:684-9.
PUBMED | CROSSREF
9. Chogle A, Velasco-Benitez CA, Chanis R, Mejia M, Saps M. Multicountry cross-sectional study found that functional gastrointestinal disorders such as colic and functional dyschezia were common in South American infants. Acta Paediatr 2018;107:708-13.
PUBMED | CROSSREF
10. Chogle A, Velasco-Benitez CA, Koppen IJ, Moreno JE, Ramírez Hernández CR, Saps M. A population-based study on the epidemiology of functional gastrointestinal disorders in young children. J Pediatr 2016;179:139-43.e1.
PUBMED | CROSSREF

11. Tehuteru E, Hegar B, Firmansyah A. Pola defekasi pada anak. Sari Pediatr 2001;3:129-33. Indonesian.
CROSSREF
12. Uzun Çiçek A, Gultekin K, Demirel G. Understanding the psycho-social differences between mothers of infants who do and do not have dyschezia. Konuralp Tip Derg 2020;12:503-10.
CROSSREF
13. Emanuel L. Holding on; being held; letting go: the relevance of Bion's thinking for psychoanalytic work with parents, infants and children under five. J Child Psychother 2012;38:268-83.
CROSSREF
14. Andrea V, Hegar B. [Probiotics in functional gastrointestinal disorders]. Sari Pediatr 2018;20:185. Indonesian.
CROSSREF