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ORIGINAL RESEARCH

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BURNOUT AMONG PEDIATRIC TRAINEES IN INDONESIA: A NATIONAL SURVEY

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ABSTRACT

Background: The intense workload and complex learning environment in pediatric specialist training program may lead to trainees' burnout. The study aimed to assess burnout and the associated factors among pediatric trainees in Indonesia.

Methods: We conducted a multicentre study involving all (15) pediatric training institutions in Indonesia from June to August 2019. A General Oldenburg Burnout Inventory (OLBI) was translated to Indonesian language. The OLBI comprised of 16 questions which assessed exhaustion (8 questions) and disengagement (8 questions). The online questionnaire was self-completed by pediatric trainees in the study sites. Ordinal regressions were performed to assess risk factors (age, marital, sex, resident stage of training, and university) for exhaustion and disengagement.

Results: A total of 841 trainees from 15 pediatric training institutions in Indonesia completed the survey (response rate 71.2%). The majority (72.1%) of the trainees was female with mean age of 31.2 ± 2.9 years. The Cronbach's-alpha was 0.74. The mean exhaustion and disengagement scores were 2.58±0.23 and 2.51±0.23, respectively. The proportion of vigor, mild, moderate and severe exhaustion were 48.3%; 42.0%; 9.0%; and 0.7%, respectively. The proportion of dedicated, mild, moderate and severe disengagement were 36.9%; 46.5%; 14.5%; and 2.1%, respectively. The stage of training (junior-intermediate stage), after adjusted to age, sex and institution was significantly increase the risk for exhaustion [odd ratio 1.47 (95%CI; 1.22-1.76)]. Disengagement level was significantly different among pediatric training institutions (located in Java and outer Java) [odd ratio 0.68 (95%CI; 0.529-0.885)].

Conclusion: Burnout was common among pediatric trainees in Indonesia.

Keywords: pediatric trainees, burnout, Indonesia, exhaustion, disengagement

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PRACTICE POINTS

- Burnout in Indonesia pediatric trainees is common.
- Pediatric trainees is more disengaged than exhausted
- Exhaustion is associated with stage of training
- Location of institutions make different level of disengagement

INTRODUCTION

The high workload and complex learning environment during pediatric training program may cause exhaustion and disengagement of the trainees.[1,2] This can result in burnout, which manifest as a syndrome of emotional exhaustion, depersonalization and a reduced of personal accomplishment. It has been reported that burnout among medical residents/trainees was very common, not only in surgical/urgency trainees but also in other specialties.[3] Burnout in pediatric residents was also highly prevalent with varied results among studies: Among pediatric residents it was varied from 17% to 70% in several studies.[1,4–7]

Burnout among doctors and medical trainees is potential to harm not only to the medical professions but also for patients and institutions. Burnout increases the risk for depression and committing medical errors, which leads to poor quality of care to the patient.[8,9] Previous studies have documented that burnout was related to suboptimal patient care among trainees of numerous medical specialities.[10]

Some factors have been identified to contribute significantly to the incidence of burnout among medical trainees, such as age, marital status and level of training.[4] Different medical specialities and different countries, which reflect different workload and resources, may also contribute to the risk of burnout among trainees.[3] Identifying these factors is import as burnout can be prevented. Burnout in pediatric trainees in Indonesia has not been assessed previously. This study also aimed to identify factors associated to burnout among the pediatric trainees.

METHODS

We conducted a multicentre study from June to August 2019. Pediatric trainees from all (15) pediatric training institutions in Indonesia. The pediatric specialist training institutions have the same curricullum, which is developed by the Indonesian Child Health College. Nevertheless, there is a space for each institution to modify the curriculum based on the local condition and available resources. A final national exam is conducted four times in a year, organized by the national College as one of the strategies to ensure standardized curricula among institutions.

All pediatric trainees who were registered as an active trainee during the study period, were invited to involve in this survey. The data was collected online and self-administered by the trainees with guaranteed confidentiality of identity. They completed the form anonymously, directly online sent to researchers without institutions' involvement. Implied informed consent was obtained from participants by completing the online questionnaire. A General Oldenburg Burnout Inventory (OLBI) questionnaire, which was translated into Indonesian language by forward-backward translation by certified translator, was used to assess burnout. Demographic data (such as age, gender, marital status), the year of training and the training stages (junior, intermediate and senior) were also collected along with the OLBI questionnaire. Incomplete questionnaires were excluded from the analysis.

The OLBI questionnaire comprises 16 questions (8 positive and 8 negative statements, 8 questions measuring exhaustion and another 8 questions

measuring disengagement). Items for exhaustion were numbers 2(R), 4(R), 5, 8(R), 10, 12(R), 14, 16. Items for disengagement were 1, 3(R), 6(R), 7, 9(R), 11(R), 13, 15. (R) means reversed item for positive statements. The questionnaire uses a 4-point Likert scale (1 strongly agree, 2 agree, 3 disagree, 4 strongly disagree for positive statements; and 1 strongly disagree, 2 disagree, 3 agree, 4 strongly agree for negative statements).[11] The interpretation of the result of the survey followed the standard interpretation of OLBI, which divided into two domains, exhaustion and disengagement. The mean score for exhaustion and disengagement (2.58 and 2.50, respectively) were used to define standard deviation. The degree of exhaustion and disengagement were classified using SD score as vigor/dedicated (<=0 SD); mild (>0 - +1 SD); moderate (>+1 - +2 SD); and severe (>+2 SD).

The study obtained ethics approval from the Health Research Ethics Committee of the Dr. Moewardi General Hospital Faculty of Medicine Universitas Sebelas Maret, Indonesia (Number 909/VII/HREC/2019).

Statistical analysis

Cronbach's - alpha was used to test reliability of translated questionnaire and a score > 0.7 indicated a reliable tool. The validity was tested using item-test correlation values. A univariate and multivariate analysis of ordinal regression was performed to determine factors which associated with the risk for exhaustion and disengagement.

RESULTS AND DISCUSSION

A total of 841 pediatric trainees from 15 pediatric training institutions in Indonesia completed the survey. The overall response rate was 71.2%, which varied among the institutions, from 34% to 100% (Table 1). The majority of the trainees was female and married, with a mean of age of 31 years (Table 2). The Cronbach's-alpha for the translated OLBI questionnaire was 0.74 (0.57 for exhaustion and 0.53 for disengagement). The item-test correlation values were more than r table value (>0.068). The mean exhaustion and disengagement scores were 2.58±0.23 and 2.51±0.23, respectively.

Table 1. Response Rates by Institutions

Institutions (city)	Total trainees (n)	Respondents (n)	Response rate (%)
Banda Aceh	26	19	73
Bandung	87	30	34
Banjarmasin	9	6	67
Denpasar	92	86	93
Jakarta	124	100	81
Makasar	88	87	99
Malang	67	46	69
Manado	70	29	41
Medan	98	98	100
Padang	44	43	98
Palembang	50	50	100
Semarang	114	51	45
Surabaya	130	54	42
Surakarta	57	45	79
Yogyakarta	125	97	78
Total	**1181**	**841**	**71**

Table 2. Characteristics of The Trainees

Characteristics	N=841
Age (years)	
- mean±SD	31.2±2.9
Age group (n,%)	
<=30 yrs	404 (48.0)
>30 yrs	437 (52.0)
Sex (n,%)	
- male	235 (27.9)
- female	606 (72.1)
Marital status (n,%)	
- Single	281 (33.4)
- Married	551 (65.5)
- Divorced	9 (1.1)
Grade (n,%)	
- Junior	204 (24.3)
- Intermediate	337 (40.0)
- Senior	300 (35.7)
Post-Graduate Year (PGY) (n, %)	
• 1	145(17.2)
• 2	193(23.0)
• 3	184 (21.9)
• 4	177 (21.1)
• 5	107 (12.7)
• ≥6	35 (4.2)

The mean score of each item of the OLBI questionnaire is presented in Table 3. The mean score of exhaustion and disengagement was similar

(2.58 vs 2.51), but the different proportions between exhaustion and disengagement were 11% (95% CI: 6.3-15.7%) and the different proportions between moderate-to-severe exhaustion and disengagement were 7% (95% CI: 3.7-10.2%). This indicated that the trainees were more disengaged than exhausted.

Table 3. The Means of Item Scores of Oldenburg Burnout Inventory

Items number	Means score	Items topic	Items number based on domain
Exhaustion			
o12	3.18	Worn out (-)	E6
o2	3.05	Tired before work(-)	E1
o8	2.94	Emotionally drained (-)	E4
o10	2.53	Fit for leisure activities (+)	E5
o4	2.43	Longer times for rest (-)	E2
o16	2.22	Feel energized (+)	E8
o5	2.17	Manageable tasks (+)	E3
o14	2.08	Tolerable workload (+)	E7
Disengagement			
o3	3.07	Devaluation of work/talk about work negatively (-)	D2
o9	2.84	Inner relationship (-)	D5
o6	2.83	Mechanical execution (-)	D3
o13	2.59	No other occupation (+)	D7
o11	2.47	Sick about work tasks (-)	D6
o15	2.27	More engaged (+)	D8
o7	2.06	Challenging (+)	D4
o1	1.95	Interesting aspects (+)	D1

E: exhaustion; D: disengagement; (-): negative statement; (+): positive statement

The majority (87%) of the trainees was burnout. Fifty-two percent of the trainees felt exhausted (42% was mild, 9% was moderate and 1% was severe). The proportion of trainees who were disengaged was higher, i.e. 64% (46% was mild, 15% was moderate and 2% was severe) (Figure 1). The correlation coefficient between exhaustion and disengagement (Pearson correlation coefficient=0.47, $p<0.001$). Stage of training (junior-intermediate), after adjusted to age, gender and institutions, was significantly a risk factor for exhaustion [adjusted odd ratio 1.47 (95%CI; 1.22-1.76)]. The means score of each items in OLBI are presented in Table 3. The highest score of exhaustion and disengagement items were worn out and devaluation of work/talk about work negatively, respectively. The location of pediatric training institution, after adjusted to age, gender, stage, and marital status, was significantly different for disengagement level [odd ratio 0.68 (95%CI; 0.529-0.885)] (Table 4).

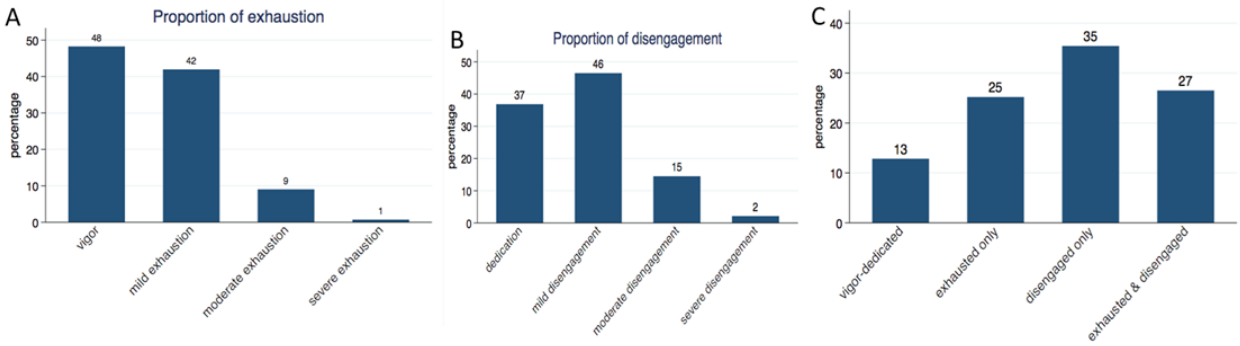

Figure 1. Proportions of Exhaustion and Disengagement among Pediatric Trainees (A=exhaustion; B=disengagement, C= exhaustion -disengagement)

Table 4. Risk Factors for Exhaustion and Disengagement

Risk factors	OR (95% CI)	aOR (95% CI)	Pseudo-R2
Exhaustion			
• Married	0.89 (0.68-1.17)		0.014
• Female	0.79 (0.59-1.06)		
• Stage (junior-intermediate)	1.48 (1.24-1.76)		
• Institutions (located in Java)	1.018 (0.998-1.049)		
Disengagement			
• Age<=30yrs	0.97 (0.73-1.29)		0.005
• Married	1.13 (0.86-1.50)		
• Female	0.88 (0.66-1.17)		
• Stage	1.12 (0.94-1.33)		
• Institutions (located in Java)	**0.68 (0.529-0.885)**		

This was the first national study on burnout among pediatric trainees in Indonesia, which showed a high rate of burnout (exhaustion of 52% and disengagement of 63%). This is higher than that reported among pediatric residents in New England, which is around 40%.[1] This difference may be due to the different tool to assess burnout; our study used OLBI, whereas the other used Maslach Burnout Inventory (MBI). A recent meta-analysis of studies on burnout among residents using MBI revealed that the overall prevalence of burnout in various countries was 51%; in which the prevalence in Asian countries (Pakistan, Saudi Arabia, Turkey) was 57.2% and among pediatric residents was 43.7%.[12]

The two domains of burnout in OLBI in this study revealed that the mean score of exhaustion (2.58) and disengagement (2.51) dimensions were higher than other studies which were done among health care workers {mean=2.53 (exhaustion); 2.38 (disengagement)}, white collar workers {mean=2.28 (exhaustion); 2.21 (disengagement)}, and academic anaesthesiologist {mean=2.52 (exhaustion); 2.27 (disengagement)}.[11,13] Most studies on burnout in medical professionals used MBI, while data on OLBI for detecting burnout in medical world is scarce.

Both OLBI and MBI are used to assess burnout. However, the concept approach of disengagement and exhaustion between OLBI and MBI is

totally different. Exhaustion in OLBI comprised emotionally, physically and affective one, whereas in MBI only emotionally. Professional accomplishment or professional efficacy as a part of burnout in MBI is not available in OLBI. Based on job demands-resources model, three aspects contributed to burnout are demographic and work-related characteristic, job demands and job resources.

Disengagement in OLBI is similar to depersonalization in MBI. It refers to distancing oneself from his/her work in general, work object and work content; the relationship between subjects and their jobs; and to negative, cynical attitudes and behaviours toward his/her work in general.[11] Disengagement was associated with job resources, which refers to all aspects of the job: physically, psychologically, socially, or organizationally. The opportunity of autonomy, social support (from supervisor or colleagues) and chance of professional development will reduce sense of disengagement.[14,15] The present study revealed that several Indonesia's pediatric trainees might have more problems with their works, either in contact with pediatric patients and their family, study programs or with the educational environment. The highest score of disengagement items was devaluation of work/talk about work negatively. It showed the decrement of work values during their study or their view of work negatively. It needs further research to elaborate in detail because the teaching hospitals in Indonesia and also socio-cultural background of the subjects are varied. Our study also showed that institution was one of the risk factors for disengagement. Each institution should be encouraged to explored the root causes of disengagement in their own trainees, especially the learning environment (autonomy, teaching and social support aspects).

Exhaustion in OLBI consists of emotional, physical and cognitive exhaustion, whereas in MBI only emotional exhaustion.[11] Although the proportion of exhaustion was less than disengagement in our study, 52% resident were exhausted and of 10% were moderate to severe exhaustion. Exhaustion was associated with job demand and resources. High demand would require sustained physical and/or psychological (cognitive and emotional) effort. A high work pressure, role overload, emotional demands, and poor environmental conditions are some demands that might cause exhaustion.[14] The highest scores of exhaustion items were worn out and tired before work. These items were correlated to physical and emotional exhaustion. Recently, pediatric trainees was considered exhausted of workload and workhours. Nevertheless, the score for workload and manageable task was the lowest in items of exhaustion. The causes of physical and emotional exhaustion in our study should be traced further. The evidence of risk factor for exhaustion in present study was stage of training. The mean scores of exhaustion among junior, intermediate, and senior stages were 2.60; 2.60 and 2.53. The senior was the less exhausted subjects.

Exhaustion and disengagement are correlated, the exhausted persons tend to be disengaged.[14] Twenty-seven percent of the trainees in our study were both exhausted and also disengaged. However, the proportion of those who were disengaged was more than exhausted. This indicates that other factors may contribute to disengagement beside exhaustion. Studies showed inconsistence results whether the prevalence of disengagement was higher than exhaustion.[6,16] A study among academic anesthesiology reported more exhaustion (49%) than disengagement (30%).[13] An intense and long-term exposure (either physical, affective, or cognitive) to job demands could cause exhaustion.

Burnout during the residency is closely influenced by the learning environment. Several learning environment contributed to burnout were supervisor's behaviour, feedback and supervisor's evaluation of resident's performance in patient care, long working ours, lack of autonomy and lack of reciprocity, accessibility of supervisor, aspects of supervisory support and teamwork includes peers, nurses and other hospital personnel.[17,18] Junior residents commonly had burnout more compared to senior residents due to increased work load, lack of experiences and responsibilities.[2] Learning environment can minimize the risk of burnout on residents by reduce unnecessary workload and schedule time arrangements.[19]

The high response rate and multicentre sites, which involved all pediatric training institutions in Indonesia is the strength of our study. However, the

limited demographic and work-related characteristic collected in our study circumscribed the exploration of other possible factors such as duration between graduation from medical school and the beginning of specialist training, true working hours per day, number of on-calls per month, number of residents, and the number of specialists and patients. Data on job demands (work overload, home-work interface, emotional and intellectual demand) and resources (autonomy, chances for professional development, supervisors and colleagues' support) were also needed.[15]

CONCLUSION

Exhaustion and disengagement were common in pediatric trainees in Indonesia. The proportion of disengagement was higher than exhaustion. There was a weak positive correlation between exhaustion and disengagement. The risk for exhaustion was pediatric trainee's stage of training. The risk for disengagement was university/institution. The highest score of disengagement was talking work negatively and the highest score of exhaustion were worn out and tired before work.

RECOMMENDATION

Burnout assessment and the background factors related to burnout is important in residency training. The knowledge of burnout root causes will help the training programs to evaluate the workload and construct a better learning environment. Further research is needed for other residency training, not only in pediatric trainee.

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COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

AUTHORS' CONTRIBUTION

Annang Giri Moelyo – the conception of the work, data collection, data analysis and interpretation, and drafting the article, critical revisions of the article, and the final approval of the version to be published.

Bambang Tridjaja – the conception of the work, critical revisions of the article, and the final approval of the version to be published.

Rina Triasih – data collection, data analysis and interpretation, drafting the article, critical revisions of the article, and the final approval of the version to be published.

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