BACKGROUND

Disaster is an event that threatens and seriously disrupts societal lives, caused by natural factors and/or non-natural factors as well as human factors that bring about human, environmental, and economic losses, and psychological effects (Law No. 24 of 2007). The National Agency for Disaster Management (BNPB) states that the incidence of floods has the highest prevalence rate (7,152 events) among the natural disasters. Furthermore, the Province of West Java is the most vulnerable area to flooding, especially in four regencies including the Garut Regency which recorded the highest number of victims and house damages from 2008 to 2018 (BNPB, 2018).

According to the report of BNPB (2016), a flash flood that occurred in Garut on September 20, 2016 at around 20.15 claimed a large number of victims. Several cases of mental disorders were found following the disaster, including 1 person diagnosed with auditory hallucinations sensory impairment, 40 people diagnosed with moderate to severe anxiety, and 80 people diagnosed with mild to moderate anxiety (Dinkes Kabupaten Garut, 2016).

The most frequent mental disorders attacking victims of a disaster compared to other types of mental disorders is post-traumatic stress disorder or PTSD (Furr et al., 2010; Feo et al., 2014). According to the American Psychological Association, during the last decade the majority of adolescents across the globe or nearly 2.5 billion adolescents were affected by the disaster (APA, 2008). Furthermore, adolescents are at a higher risk of developing PTSD due to their poor ability in adapting to changes throughout their stages of physical and mental development.

SCREENING OF POST-TRAUMATIC STRESS DISORDER AMONG ADOLESCENT VICTIMS OF THE GARUT FLASH FLOOD IN 2016

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ABSTRACT

The flash flood that occurred in the Garut Regency three years ago brought about devastating effects, one of which was the psychological impact in adolescents, namely PTSD. This study aimed to identify Post-Traumatic Stress Disorder (PTSD) in adolescent victims of the flash flood that occurred in Garut, Indonesia three years ago. PTSD was assessed using the questionnaire of PTSD Checklist (PCL) that had been reported to be reliable and valid with Cronbach’s alpha was 0.91 and 0.947. The participant of this study were 102 teenagers of the State Junior High-School (SMPN) 3 Tarogong Kidul who were victims of the flood and selected using a purposive sampling technique. This study used a quantitative descriptive method with cross-sectional approach. The results showed that three years after the Garut flash flood, a total of 80% of adolescent victims did not experience PTSD and 20 (20%) of the adolescents were identified having PTSD. Re-experiencing symptom and hyper-arousal symptom were most common trauma encountered, while 90% participants have feeling intruded by memories of trauma and 80% participants showed symptoms of increased alertness. It is expected that nurses and experts can perform early and continuous screening for PTSD following a traumatic event, both in adolescents and other age groups to prevent another more severe impact.

Keywords: adolescents flash flood post-traumatic stress disorder
Based on their stage of development, adolescents tend to have higher psychological distress than children (Moksnes, Espnes, & Haugan, 2014; Yavuzer, Karatas, Civilidag, & Gundogdu, 2014). This was confirmed by Pratiwi, Karini, & Agustin, (2010) who compared the rates of PTSD in adolescent and adult survivors of Yogyakarta’s Merapi eruption, showing that the level of PTSD in adolescents (30.77%) was higher than in adults (18.75%).

Behavioral changes due to PTSD symptoms are more likely observed in adolescents than in children and adults. This is confirmed by the changes in behavior followed by changes in brain structure in adolescents (Steinberg, 2008 in Nooner et al., 2012). Adolescents with PTSD experienced the posterior brain atrophy in the corpus collasum (Jackowski, de Araújo, de Lacerda, de Jesus Mari, & Kaufman, 2009).

Further epidemiological studies have indicated that the traumatic events and symptoms of PTSD often appear in adolescents up to 17 years and rarely occur under the 13 years-old (Nooner et al., 2012; Neugebauer et al., 2009). PTSD can also occur more than a month or even prolongs over 6 months following the disaster (APA, 2000 in Sadock & Sadock, 2010). A total of 5.7% adolescents were detected having PTSD after three years of the earthquake event in Wenchuan, China (Tian, Wong, Li, & Jiang, 2014).

As a consequence of PTSD, adolescents tend to develop behavioral problems and maladaptive emotional regulation as well as personal and social dysfunction, and have poor academic performance (Boyraz, Horne, Owens, & Armstrong, 2013; Bulut, 2013; Taft, Creech, & Kachadorian, 2012). PTSD simplified the symptoms into three clusters, including constant re-experiencing of the traumatic event, avoidance of traumatic reminders and a sense of threat (APA, 2000). Therefore, sustainable and multidisciplinary recovery efforts need to be made through involvement of general workers, social workers, and health workers such as nurses to investigate the prevalence of PTSD in adolescent survivors three years after the flash flood in Garut, and to prevent PTSD symptoms by screening risk population and providing early and timely interventions.

METHODS

Our study used a descriptive-quantitative design, aiming at identifying the presence of post-traumatic stress disorder (PTSD) in the adolescent victims of the flash flood that occurred in the Garut Regency in 2016. The population of this study included all of the 9th grade students of SMPN 3 Tarogong Kidul with a total of 297 adolescents. Population of this study was focused on the school that was most severely affected by the disaster and based on the recommendation of the Health Office and the Regional Agency for Disaster Management (BPBD) of Garut. The sample of this study involved 102 adolescents, taken using a purposive sampling technique. They were selected according to specific criteria and research objectives, i.e., having experience of the flash flood that occurred 3 years ago, either direct exposure to or witnessing the flood.

PTSD symptoms were assessed using PTSD Checklist-Stressor Version (PCL), which has 17 items corresponding to the symptoms discussed in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (Weathers et al., 1993). Validity testing of the English-version of PCL revealed the coefficient of 0.93 and the reliability testing showed a Cronbach's alpha of 0.96 (Weathers et al., 1993; Blanchard et al., 1996). As for the Bahasa Indonesia version, the validity coefficient of the instrument was 0.947 and the Cronbach's alpha reliability of coefficient was 0.91 (Kalsum, 2014; Amelia, 2016).

The PCL questionnaire consists of 17 questions with 3 cluster, including re-experiencing, avoidance, and hyper-arousal symptoms (APA, 2000). Data interpretation was performed by aggregating the total score of each statement. Subsequently, the range of 17-85 was obtained from each respondent. For non-military individuals, the score below 36 is said to not having PTSD, while the criterion for having PTSD is the score of 36-85 (NCPTSD, 2000; APA, 2000). The description of PTSD can be seen based on their respective indicators which were subsequently analyzed using descriptive statistics of frequency distribution and percentage.

Letter of approval for the study was obtained from the Ethical Committee for Health Research of the Faculty of Medicine, Universitas Padjajaran (No. 417/UN6.KEP/EC/2019). Afterward, the researchers proposed the approval letter to the Office of National Integration and Politics of Garut and gained study approval letter (No. 072/26-Bakesbangpol/I/2018) to be forwarded to the Headmaster of SMPN 3 Tarogong Kidul. Following approval completion, the researchers directly came to the school to collect data researchers directly came to the school to collect data on 9th grade students. Prior to questionnaire administration, informed consent and instruction for questionnaire completion were provided.
RESULTS

Respondent Characteristics

Half of the respondents were female (50%) and half others were male (50%). As for experience, 50% of them were directly exposed to the flood and 50% witnessed the flood. Also, some of the respondents have their houses severely damaged by the flood (30.3%), while 30% lost their materials including losing stationery (table 1).

Screening for PTSD in Adolescent Victims of Flash Floods in Garut of 2016

A small proportion of adolescents (20%) had PTSD, while almost all adolescents (80%) did not experience PTSD (table 2).

Description of PTSD in Adolescent Victims of Flash Floods in Garut of 2016 Based on Subvariable

Adolescents with PTSD mostly showed re-experiencing symptoms (95%), while the second-frequently symptoms is hyper-arousal (80%) symptoms, and the least is avoidance or avoidance related events (60%) (Figure 1).

Subvariables of PTSD Adolescent Victims of Flash Floods in Garut of 2016 Based on Indicators

The indicator with the highest percentage was item 8 or sub-variable avoidance, i.e., trying to avoid memory about events (84%). It was followed by subvariable of hyper-arousal (82%) with indicator item 16 and 17, i.e., becoming increasingly alert and shocked than before (table 3).

Adolescents with PTSD and Non-PTSD Impacted by Flash Flood in Garut of 2016 Based on Characteristics.

Adolescents with PTSD had more experience of being directly exposed to the disaster (75%), and this occurred more among girls (55%) than boys (45%). Meanwhile, adolescents without PTSD were most commonly boys (51%) and they were mostly merely witnessed the event (46%) (table 4 and table 5).

DISCUSSION

The results of the study among 102 teenagers of flash flood victims in Garut showed that a total of 82 teenagers (80%) were identified as not having PTSD. Meanwhile, 20 teenagers (20%) had PTSD three years after the flash flood. This finding confirms that PTSD can be experienced by adolescents and can persist over different periods for each individual.

As with 82 adolescents (80%) who did not suffer PTSD, this shows that adolescents seem to have effective coping strategies to adapt to the post-flash flood situation. In this study, all adolescents who were victims of the flash flood had participated in a single trauma healing session at one week following the disaster. The school collaborated with Aksi Cepat Tanggap, a humanitarian NGO (Non-Profit Organization), in providing support for mental health recovery and health education, especially for teenagers in the school.

The school also initiated activities that incorporate a spiritual approach such as reciting the Holy Qur'an and Duha prayer prior to the class activities. This effort certainly facilitates adolescents to cope with the trauma and produces different responses in each individual. This study is in line with Trickey (2012) who suggests that social support and the selection of coping mechanisms are among the risk factors for individuals having PTSD. Likewise, previous studies found that the spiritual aspects also have a positive impact on the coping mechanism of individuals to respond to the arising PTSD symptoms (Thabet, EL-
Meanwhile, in adolescents who were identified as having PTSD (20%) following the flash flood, the symptoms could be identified and last more than three years after disaster. This finding is consistent with Moksnes et al. (2014) who entail that PTSD can prolong over periods of time and include delayed onset or over 6 months. This study is also in agreement with Tsujiuchi et al. (2016) who found 59.4% of the participants identified as probable PTSD one year after the disaster occurred. Similarly, Tian et al. (2014) also pointed out that 5.7% of adolescents have PTSD three years after the earthquake in Wenchuan,

Table 1. Respondent Characteristics

| Characteristics          | Frequency | Percentage |
|-------------------------|-----------|------------|
| **Gender**              |           |            |
| Male                    | 51        | 50.0       |
| Female                  | 51        | 50.0       |
| **Experience with flash flood** |           |            |
| Witnessing the event    | 51        | 50.0       |
| Direct exposure:        |           |            |
| Injured                 | 50        | 49.0       |
| Disability              | 1         | 1.0        |
| Family loss:            |           |            |
| Not lose                | 100       | 98.1       |
| Lose                    | 2         | 1.9        |
| Material loss:          |           |            |
| Not lose                | 71        | 69.6       |
| Lose                    | 31        | 30.4       |
| House damage:           |           |            |
| Not damaged             | 53        | 51.9       |
| Minor                   | 14        | 13.7       |
| Medium                  | 4         | 3.9        |
| Major                   | 31        | 30.3       |

Table 2. Screening for PTSD in Adolescent Victims of Flash Floods in Garut of 2016

| Description of PTSD | Frequency | Percentage |
|--------------------|-----------|------------|
| Having PTSD        | 20        | 20.0       |
| Not having PTSD    | 82        | 80.0       |

Table 3. Subvariables of PTSD Adolescent Victims of Flash Floods in Garut of 2016 Based on Indicators

| Description of PTSD | Frequency | Percentage |
|--------------------|-----------|------------|
| Re-experiencing    | 19        | 95.0       |
| Avoidance          | 12        | 60.0       |
| Hyperarousal       | 16        | 80.0       |

Table 4. Adolescents with PTSD Impacted by Flash Flood in Garut of 2016 Based on Characteristics

| Experience with The Flash Flood | Gender | Total |
|--------------------------------|--------|-------|
|                                | Male   | Female|       |
| Direct exposure                | f      | %     | f      | %     | f      | %     |
| Witnessing                     | 5      | 25.0  | 10     | 50.0  | 15     | 75.00 |
| Total                          | 9      | 45.0  | 11     | 55.0  | 20     | 100   |

Buhaisi, & Vostanis, 2014; Jocson et al., 2020; Hourani et al., 2012).
China. This prolonged PTSD can be triggered by several factors, such as differences in experience with disasters, whether direct exposure to the event or merely witnessing the event.

In this study, the majority of adolescents with PTSD (75%) had direct exposure to the disaster, while adolescents who did not suffer from PTSD mostly (56%) merely witnessed the event. This suggests that the experience of a catastrophic event has a different impact on each individual. As Sadock & Sadock (2010) argue, with regard to the effect of stressors, both direct exposure to and witnessing the disaster are among the factors of PTSD emergence.

Based on gender, this study found PTSD was more experienced by female adolescents (55%) than the male. This indicated that there is no gender difference in response to the PTSD symptoms between men and women. This finding is supported by Green et al. (1991) who reveal that male and female victims of a disaster in Buffalo Creek tend to show similar responses and have no significant difference in the level of response to the symptoms. In short, gender is not always a major contributing factor for individuals to suffer from PTSD.

As for this study, most adolescents with PTSD showed avoidance symptom responses in item 8, i.e., trying to avoid some memories of disaster. All adolescents stated that they experienced this with different rates with 0% of adolescents responding no at all (1), 20% saying they had little experience (2), 25% of adolescents reporting the medium category (3), 35% reporting several times (4), and 20% reporting frequent experience (5). This finding is in accordance with the previous study, showing that teenagers with PTSD tend to present with avoidance responses indicated by the effort to escape from any stimuli such as memories and activities that are related to the traumatic events (Mueser & Taub, 2008 in NHMRC, 2013). Therefore, adolescents tend to develop maladaptive behavior as a result of negative appraisal of the traumatic event and inadequate coping strategies in dealing with difficult situations in each stage of their life.

In line with this study, the earlier study has demonstrated the presence of prolonged health problems after identification of PTSD. A study conducted by (Jin, Xu, Liu, & Liu, 2014) found 1181 (40.1%) participants overall were diagnosed to be suffering from PTSD, while 58.7% of the respondents reported that they suffered from at least 1 re-experience symptom such as specific phobia and 49.4% suffered from 2 or more arousal symptoms such as panic disorder. This finding implies the need for an effective follow-up therapy to cope with the response to the PTSD symptoms.

According to APA (2008) the CBT (Cognitive Behavior Therapy) is an effective intervention to deal with PTSD. Several previous studies have indicated a significant change in the PTSD symptoms and improvement in life quality. CBT is a psychosocial therapy that covers several interventions to modify three interrelated functioning of thoughts, feelings and behavior, that control responses and negative behavior (Association for Behavioral and Cognitive Therapies [ABCT], 2017; APA, 2008). CBT can be given by incorporating various types of therapies that focus on reducing a response to some symptoms or overall symptoms of PTSD.

As for this study, the adolescents with PTSD mostly present with re-experience symptoms with a total of 95% of the teenagers. This can be overcome by several types of therapy such as conducting activities that discuss stress due to traumatic events, compile a list of events and traumatic memories, establish a safe space for individuals in their imagination, imaginative techniques, kinesthetic techniques, and EMDR (Erwina, 2010).

Meanwhile, the second highest symptom in this study is the hyper-arousal symptom responses, stated in item 16 of the questionnaire regarding the response to be more alert than before. It was found that some of the adolescents (55%) reporting several times and frequent experience. This finding agrees with Heir, Piatigorsky, & Weisaeth (2010), showing that excessive response (hyper-arousal) is usually characterized by a sense of anxiety or increased alertness, which can result in disrupted daily activities. This can also cope with CBT that target arising symp-

| Experience with The Flash Flood | Gender | Total |
|---------------------------------|--------|-------|
|                                 | Male   | Female |       |
| Direct exposure                 | 15     | 21     | 36     |
| Witnessing                      | 27     | 19     | 46     |
| Total                           | 42     | 40     | 82     |
toms, such as exercise in controlling fear and bodily reactions, muscle relaxation, deep breathing, positive statements, and proper sleep management (Erwina, 2010).

The avoidance response appears in 60% of the adolescents who present with the symptoms or try to prevent memories related to the disaster. This can be solved by effective therapeutic activities such as conducting discussions about avoidance behavior, assessing traumatic memories, a series of CBT techniques such as imagined exposure, drawing, storytelling and writing (Erwina, 2010). In addition, CBT is also recommended to involve their parents to relieve fear or other symptoms at home (Higa-McMillan et al., 2016). In terms of therapy administration, individual CBT is more effective than group CBT (NICE, 2018).

From this, it can be said that adolescents of SMPN 3 Tarogong Kidul, which is the only educational institution that most severely struck by the disaster mostly, show re-experience and hyperarousal responses. They feel intruded by memories of the event and become increasingly alert since the event of disaster three years ago.

Compared to the previous studies which investigated the prevalence of PTSD among adolescents in seven years following Pangandaran's Tsunami (19.9%) and three years following the earthquake in Wenchuan, China (5.7%), adolescents with PTSD in our study has higher prevalence (20%). This can be a focus of attention for health workers, especially nurses, to provide a follow up effort to prevent prolonged PTSD among the victims.

Individuals with PTSD also experience stress so that further evaluation from professionals is required to assess their level of stress (Weiss & Marmar, 1997). Delayed detection and treatment can result in the emergence of symptoms that can disrupt individuals' life and cause other health problems (NCPTSD, 2000). Therefore, the nurses have an important role in identifying and conducting follow-up measures on individuals who need mental health care to prevent further harmful effects.

The limitations of this study that no comparison was made with the pre-disaster condition due to a lack of data, so it is difficult to conclusion about the extent of the effect of the flash flood on the respondents. Future studies should include larger sample sizes and more powerful designs. Based on the result highlights the importance of continued psychological support and enhancement and utilization of resilience factors in management of PTSD in the aftermath of any future natural disaster.

CONCLUSION

A small proportion (20%) of adolescent victims of the Garut flash flood three years ago was identified having PTSD, while the other large number of adolescents did not have PTSD. This study shows that the most common PTSD symptom occur in adolescents are re-experiencing and hyper-arousal symptom, such as feeling intruded by memories of catastrophic events and increased alertness.

Suggestion for nurse practitioner, It is important to perform early screening and provide effective therapy for PTSD that target adolescents and other high-risk age groups. The suggested therapies include CBT (Cognitive Behaviour Therapy), psycho-education, stress management, acupuncture, pharmacotherapy, family therapy, and school-based intervention. Suggestion for parents and relevant institutions, mental health problems following a traumatic event among children and adolescents need to be early detected and treated. Additionally, it should be a concern for relevant institutions such as schools, public health centers, and other relevant institutions to carry out early detection and set follow-up measures for PTSD quickly and responsively. Suggestion for further research, need to analyze other aspects such as immediate screening for PTSD following catastrophic events in a certain area, either in adolescents or other age groups.

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REFERENCES

A.R. Amelia. 2016. Efektivitas Cognitive Behavior Therapy (CBT) untuk Menurunkan Symptom Stres Pasca Trauma pada Korban yang Mengalami Kekerasan dalam Pacaran. Universitas Padjadjaran.

American Psychological Association [APA]. 2008. Post Traumatic Stress Disorder. Retrieved March 2, 2019, from https://www.apa.org

APA. 2000. Diagnostic and Statistical Manual of Mental Disorders (4th-Rev ed.). Washington, D.C.: American Psychiatric Association.

APA. 2002. Developing Adolescents: A Reference for Professionals. Educational Psychologist, 8(2), 36-36. https://doi.org/10.1080/
Association for Behavioral and Cognitive Therapies [ABCT]. 2017. Cognitive Behavioral Therapy-Effective Child Therapy. Retrieved June 30, 2019, from https://effectivechildtherapy.org/therapies/cognitive-behavioral-therapy/

Badan Nasional Penanggulangan Bencana [BNPB]. 2016. Risiko Bencana Indonesia (Disasters Risk of Indonesia). Direktorat Pengurangan Resiko Bencana Deputi Bidang Pencegahan dan Kesiaipansiagaan. Retrieved from http://inarisk.bnpb.go.id/pdf/Buku RBI_Final_low.pdf

Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. 1996. Psychometric Properties of The PTSD Checklist (PCL). Behaviour Research and Therapy, 34(8), 669-673. https://doi.org/10.1016/0005-7967(96)00033-2

BNPB. 2008. Pedoman Penyusunan Rencana Penanggulangan Bencana.

BNPB. 2017. Buku Saku Tanggap Tangkas Tangguh Menghadapi Bencana.

BNPB. 2018. Data Informasi Bencana Indonesia [DIBI]. Retrieved February 2, 2019, from http://dibi.bnpb.go.id/

Boyraz, G., Horne, S. G., Owens, A. C., & Armstrong, A. P. 2013. Academic Achievement and College Persistence of African American Students with Trauma Exposure. Journal of Counseling Psychology, 60(4), 582-592. https://doi.org/10.1037/a0033672

BPBD Kabupaten Garut. 2016. Badan Penanggulangan Bencana Daerah Kabupaten Garut.

Bulut, S. 2013. Prediction of Post-Traumatic Stress Symptoms via Comorbid Disorders and other Social and School Problems in Earthquake Exposed Turkish Adolescents. Revista Latinoamericana de Psicología, 45(January 2013), 47-61. Retrieved from http://www.scielo.org.co/pdf/rlps/v45n1/v45n1a04.pdf

Centre for Posttraumatic Mental Health [CPMH]. 2017. Australian Guidelines for the Treatment of Acute Stress Disorder and Posttraumatic Stress Disorder Specific. Phoenix Australia, 1-6. Retrieved from www.phoenixaustralia.org

Departemen Kesehatan RI. 2007. Pedoman Teknis Penanggulangan Krisis Kesehatan Akibat Bencana. Jakarta: Kementerian Kesehatan RI. Retrieved from http://www.depkes.go.id/resources/download/penanganan-krisis/buku_pedoman_teknis_pkk_ab.pdf

Dinkes Kabupaten Garut. 2016. Dinas Kesehatan Kabupaten Garut.

Erwina, I. 2010. Pengaruh Cognitive Behaviour Therapy Terhadap Post-Traumatic Stress Disorder Pada Penduduk Pasca Gempa Di Kelurahan Air Tawar Barat Kecamatan Padang Utara Propinsi Sumatera Barat. Retrieved from http://lib.ui.ac.id/file?file=digital/137225-TIraErwina.pdf

Feo, P., Di Gioia, S., Carloni, E., Vitiello, B., Tozzi, A. E., & Vicari, S. 2014. Prevalence of Psychiatric Symptoms in Children and Adolescents One Year After the 2009 L'Aquila Earthquake. BMC Psychiatry, 14(1), 270. https://doi.org/10.1186/s12888-014-0270-3

Ford, J. 2016. Trauma and Posttraumatic Stress Disorder in Children and Adolescents. In Trauma Psychology: American Psychological Association. Division 56-American Psychological Association.

Furr, J. M., Comer, J. S., Edmunds, J. M., & Kendall, P. C. 2010. Disasters and Youth: A Meta-Analytic Examination of Posttraumatic Stress. Journal of Consulting and Clinical Psychology, 78(6), 765-780. https://doi.org/10.1037/a0021482

Heir, T., Piatigorsky, A., & Weisæth, L. 2010. Post-traumatic stress symptom clusters associations with psychopathology and functional impairment. Journal of Anxiety Disorders, 24(8), 936-940. https://doi.org/10.1016/j.janxdis.2010.06.020

Higa-McMillan, C. K., Francis, S. E., Rith-Najarian, L., & Chorpita, B. F. 2016. Evidence Base Update: 50 Years of Research on Treatment for Child and Adolescent Anxiety. Journal of Clinical Child & Adolescent Psychology, 45(2), 91-113. https://doi.org/10.1080/15374416.2015.1046177

Hourani, L. L., Williams, J., Forman-Hoffman, V., Lane, M. E., Weimer, B., & Bray, R. M. 2012. Influence of Spirituality on Depression, Posttraumatic Stress Disorder, and Suicidality in Active Duty Military Personnel. Depression Research and Treatment, 2012, 1-9. https://doi.org/10.1155/2012/425463

Hurlock, E. B. 2004. Psikologi Perkembangan Suatu Pendekatan Sepanjang Rentang Kehidupan (Edisi ke 5). Jakarta: Erlangga.

International Council of Nurses [ICN]. 2009. ICN
Framework of Disaster Nursing Competencies. World Health Organization and International Council of Nurses. Retrieved from http://www.wpro.who.int/hrh/documents/icn_framework.pdf

Iwadare, Y., Usami, M., Suzuki, Y., Ushijima, H., Tanaka, T., Watanabe, K., ... Saito, K. 2014. Posttraumatic Symptoms in Elementary and Junior High School Children after the 2011 Japan Earthquake and Tsunami: Symptom Severity and Recovery Vary by Age and Sex. The Journal of Pediatrics, 164(4), 917-921.e1. https://doi.org/10.1016/j.jpeds.2013.11.061

Jackowski, A. P., de Araújo, C. M., de Lacerda, A. L. T., de Jesus Mari, J., & Kaufman, J. 2009. Neurostructural Imaging Findings in Children with Post-Traumatic Stress Disorder: Brief Review. Psychiatry and Clinical Neurosciences, 63(1), 1-8. https://doi.org/10.1111/j.1440-1819.2008.01906.x

Jin, Y., Xu, J., Liu, H., & Liu, D. 2014. Posttraumatic Stress Disorder and Posttraumatic Growth Among Adult Survivors of Wenchuan Earthquake After 1 Year: Prevalence and Correlates. Archives of Psychiatric Nursing, 28(1), 67-73. https://doi.org/10.1016/j.apnu.2013.10.010

Jocson, R. M., Alers-Rojas, F., Ceballo, R., & Arkin, M. 2020. Religion and Spirituality: Benefits for Latino Adolescents Exposed to Community Violence. Youth & Society, 52(3), 349-376. https://doi.org/10.1177/0044118X18772714

Kalsum, U. 2014. Hubungan Dukungan Sosial dan Trait Kecemasan dengan Trauma pada Korban Perdagangan Manusia. Jurnal Sains Dan Praktik Psikologi, 2(3), 243-255. Retrieved from http://ejournal.umm.ac.id/index.php/jspp/article/view/2888

Kementerian Kesehatan RI. 2016. Tinjauan Penanggulangan Krisis Kesehatan. Pusat Krisis Kesehatan. Retrieved from https://www.pusatkrisis.kemkes.go.id

Kementerian Kesehatan RI. 2017. Data dan Informasi Profil Kesehatan 2017. Profil Kesehatan Indonesia. Retrieved from http://www.depkes.go.id/Resources/Download/Pusdatin/Lain-Lain/Datadaninformasiskehasatanindonesia2016-Smaller-size-Web.Pdf

Levers, L. L. 2012. Trauma Counseling Theories and Interventions (1st ed.). New York: Springer Publishing Company, LLC. Retrieved from https://www.springerpub.com/media/samplechapters/9780826106834_9780826106834_chapter.pdf

Ma, X., Liu, X., Hu, X., Qiu, C., Wang, Y., Huang, Y., Li, T. 2011. Risk Indicators for Post-Traumatic Stress Disorder in Adolescents Exposed to the 5.12 Wenchuan Earthquake in China. Psychiatry Research, 189(3), 385-391. https://doi.org/10.1016/j.psychres.2010.12.016

Maeda, M., Kato, H., & Maruoka, T. 2009. Adolescent Vulnerability to PTSD and Effects of Community-Based Intervention: Longitudinal Study Among Adolescent Survivors of the Ehime Maru Sea Accident. Psychiatry and Clinical Neurosciences, 63(6), 747-753. https://doi.org/10.1111/j.1440-1819.2009.02031.x

Mayo Clinic. 2010. Post-traumatic stress disorder (PTSD). Retrieved January 24, 2019, from https://www.mayoclinic.org/diseases-conditions/post-traumatic-stress-disorder/symptoms-causes/syc-20355967?p=1

McDermott, B., Berry, H., & Cobham, V. 2012. Social connectedness: A potential aetiological factor in the development of child post-traumatic stress disorder. Australian & New Zealand Journal of Psychiatry, 46(2), 109-117. https://doi.org/10.1177/0004867411433950

Moksnes, U. K., Espnes, G. A., & Haugan, G. 2014. Stress, Sense of Coherence and Emotional Symptoms in Adolescents. Psychology and Health, 29(1), 32-49. https://doi.org/10.1080/08870446.2013.822868

Mueser, K. T., & Taub, J. 2008. Trauma and PTSD Among Adolescents With Severe Emotional Disorders Involved in Multiple Service Systems. Psychiatric Services, 59(6), 627-634. https://doi.org/10.1176/ps.2008.59.6.627

Naeem, F., Ayub, M., Masood, K., Gul, H., Khalid, M., Farrukh, A., ... Rasheed, H. 2011. Prevalence and Psychosocial Risk Factors of PTSD?: 18 months After Kashmir Earthquake in Pakistan. Journal of Affective Disorders, 130(1-2), 268-274. https://doi.org/10.1016/j.jad.2010.10.035

National Child Traumatic Stress Network [NCTSN]. 2009. Linking Trauma & Substance Abuse: Understanding Traumatic Stress In Adolescents. U.S. Department of Health and Human Services, 11-21. Retrieved from https://www.nctsn.org
National Health and Medical Research Council [NHMRC]. 2013. Acute Stress Disorder & Posttraumatic Stress Disorder Australian Guidelines. Melbourne, Victoria: Australian Centre for Posttraumatic Mental Health. Retrieved from www.acpmh.unimelb.edu.au

National Institute for Health and Care Excellence [NICE]. 2018. NICE Guideline: Post-Traumatic Stress Disorder. Retrieved March 3, 2019, from nice.org.uk/guidance/ng116

NCPTSD. 2000. Using the PTSD Checklist for DSM-IV (PCL). Retrieved March 3, 2019, from http://www.pcl.va.gov/professional/assessment

Neugebauer, R., Fisher, P. W., Turner, J. B., Yamabe, S., Sarsfield, J. A., & Stehling-Ariza, T. 2009. Post-Traumatic Stress Reactions Among Rwandan Children and Adolescents in the Early Aftermath of Genocide. International Journal of Epidemiology, 38(4), 1033-1045. https://doi.org/10.1093/ije/dyn375

NIMH. 2016. Post-Traumatic Stress Disorder. Retrieved March 3, 2019, from https://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd/index.shtml

Nisha, C., Kiran, P., & Joseph, B. 2014. Assessment of Post Traumatic Stress Disorder Among Disaster Affected Children in a High School in Uttarkashi district, Uttarakhand, India. International Journal of Health System and Disaster Management, 2(4), 237-240. https://doi.org/10.4103/2347-9019.144411

Nooner, K. B., Linares, L. O., Batinjane, J., Kramer, R. A., Silva, R., & Cloitre, M. 2012. Factors Related to Posttraumatic Stress Disorder in Adolescence. Trauma, Violence, & Abuse, 13(3), 153-166. https://doi.org/10.1177/1524838012447698

Norris, F. H., Friedman, M. J., Byrne, C. M., Diaz, E., Watson, P. J., & Kaniasty, K. 2003. 60,000 Disaster Victims Speak: Part I. An Empirical Review of the Empirical Literature, 1981-2001. Psychiatry: Interpersonal and Biological Processes, 65(3), 207-239. https://doi.org/10.1521/psyc.65.3.207.20173

Notoatmodjo, S. 2012. Metodologi Penelitian Kesehatan. Jakarta: Rineka Cipta.

Nursalam. 2008. Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan Pedoman Skripsi, Tesis dan Instrumen Penelitian Keperawatan (1st ed.). Jakarta: Salemba Medika.

Parwulan, D. 2010. Gambaran Post Traumatic Stress Disorder (PTSD) Pasca Gempa pada Anak Usia 7-14 Tahun di Dusun Sidamukti. Universitas Padjadjaran.

Persatuan Perawat Nasional Indonesia [PPNI]. 2018. Peran Perawat Persigana. Retrieved March 3, 2019, from https://ppni-inna.org/index.php/public_eng/information/news-detail/425

Pratiwi, C. A., Karini, S. M., & Agustin, R. W. 2010. Perbedaan Tingkat Post-Traumatic Stress Disorder Ditinjau dari Bentuk Dukungan Emosi pada Penyintas Erupsi Merapi Usia Remaja dan Dewasa di Sleman, Yogyakarta. Jurnal Psikologi Universitas Sebelas Maret Surakarta.

Prawitasari, J. E. 2012. Psikologi Terapan: Melintas Batas Disiplin Ilmu. Jakarta: Penerbit Erlangga.

Rahmadian, A. A., Furqon, L. N., S. Y., Rusmana, N., & Downs, L. L. 2016. Prevalensi PTSD dan Karakteristik Gejala Stres Pascatrauma pada Anak dan Remaja Korban Bencana Alam. Jurnal Ilmu Pendidikan Dan Pengajaran, 3(1), 1-17. Retrieved from https://www.perpustakaan.upi.ac.id

Rasmussen, D. J., Karsberg, S., Karstoft, K.-I., & Elklit, A. 2013. Victimization and PTSD in an Indian Youth Sample from Pune City. Open Journal of Epidemiology, 3(1), 12-19. https://doi.org/10.4236/ojepi.2013.31003

Raudzah, S., Elklit, A., Vincent, R., Sultan, M. A., & Kana, K. 2014. Preliminary Findings on Lifetime Trauma Prevalence and PTSD Symptoms Among Adolescents in Sarawak Malaysia. Asian Journal of Psychiatry, 11(2014), 45-49. https://doi.org/10.1016/j.ajp.2014.05.008

Read, J. P., Ouiemtte, P., White, J., & Farrow, S. 2011. Rates of DSM-IV-TR Trauma Exposure and Posttraumatic Stress Disorder Among Newly Matriculated College Students. Psychol Trauma, 3(2), 148-156. https://doi.org/10.1037/a0021260.Rates

Reed, P. L., Anthony, J. C., & Breslau, N. 2007. Incidence of Drug Problems in Young Adults Exposed to Trauma and Posttraumatic Stress Disorder. Archives of General Psychiatry, 64(12), 1435-1442. https://doi.org/10.1001/archpsyc.64.12.1435

Retnowati, S. 2012. Intervensi Psikososial saat Bencana.

Ross, R., Foa, E. B., Davidson, J. R. T., & Frances, A. 1999. Expert Consensus Treatment Guidelines For Posttraumatic Stress Disorder-
Screening of Post-Traumatic Stress Disorder Among...