



**Utrecht University**

**Psychometric validation of PTSD Checklist for DSM-5 (PCL-5): Balinese  
version**

Anna Vaitisi (6870236)

Department of Developmental Psychology, Utrecht University

Supervisor: Dr. Mitima Verloop

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### **Abstract**

Post-traumatic stress disorder (PTSD) is arguably the most common psychiatric disorder to arise after exposure to a traumatic event. It is found in people who have experienced major negative events in their life such as a natural or man-made disaster. Many Western countries use questionnaires to measure and evaluate PTSD symptoms, such as the Posttraumatic Stress Disorder Checklist (PCL-5). Yet, little is known about the non-western countries. In Bali, there is an increased number of accidents that may be associated with PTSD. The current study contributes to this gap by exploring the psychometric properties of PCL-5 Balinese version, among genders, as well as the later relationship of the deceased persons. The data was collected by using the snowball sampling method in 300 participants. Results showed a good internal consistency of PCL-5, no significant correlation with LEC-5 and moderate correlation with QIDS. The results of this survey showed good construct validity, with women receiving higher scores than men, among participants that lost their child than others that lost another family member. No significant difference was found in participants who were involved in the accident and participants who been informed in another way about the car accident. Furthermore, it was found a good interrater reliability and according to the results about factor analysis, we come to the conclusion that this study does not confirm the PCL-5 factors. The findings suggest further studies in order to expand the knowledge regarding the validity of the PCL-5.

**Keywords:** · PTSD · Psychometric properties · Balinese · PCL-5



## **Psychometric validation of PTSD Checklist for DSM-5 (PCL-5): Balinese version**

Post-traumatic stress disorder (PTSD) is arguably the most common psychiatric disorder to arise after exposure to a traumatic event. It is found in people who have experienced major negative events in their life such as a natural or man-made disaster. Research shows that people who have survived devastating car accidents have a higher risk of getting PTSD symptoms (Blanchard et al., 1996; Matthews, 2005) and it is said that the main cause of PTSD is car accidents in the general population (Blanchard et al., 1996; Kuch et al., 1996).

Traffic in Indonesia is the reason for many accidents occurring, which is causing severe and fatal injury in the last 10 years. The most popular means of transport in Indonesia is motor vehicles because of its unmatched degree of mobility and agility (Santosa, Mahyuddin & Sunoto, 2017). People who have experienced a serious car accident are more likely to develop after that, a mental trauma that will negatively affect their lives.

Regarding the Balinese population, a plethora of observations regarded to traffic accidents can be noted. According to Alexandrin (2019), people in Bali believe that when someone experiences an accident or a trauma, their soul loss is a physical, social and spiritual condition. The shock that occurs due to the accident makes a person's soul leave their body and travel to the site where the calamity occurred (Alexandrin, 2019). While some people in Bali recognize that physical forces cause vehicle accidents, many people believe deities and spirits cause them. This belief conflicts the spiritual and physical aspects of life and so the prevention of accidents is related to the religious. The spiritual and social repercussions are remedied through soul retrieved rituals as they are the central way to socially, psychologically and spiritually heal

the victim of an accident (Alexandrin, 2019). Balinese people consider all the types of spiritual rituals that they can help them to alleviate the psychological consequences of loss souls.

All societies have different rituals, patterns for dealing with survivors of traumatic event. The western society use a different approach about certain issues such as mental disorders as compared to Balinese people (Blevins et al., 2015). The western society reacts to PTSD in a scientific way, which suggests that they are more aware of this disease and its consequences. They also realize the problems faced by a PTSD patient, who are seeking for help. On the contrary, the reaction of the majority of Balinese people is different according to this disorder because they consider it as a spiritual change in a person's life and the way it can be prevented is with the help of spiritual guidance. Not only in Bali, but around the world different cultures use herbal therapies, physical and somatic (bodily) treatments of many varieties, aboriginal dances and incantations, recitations are common tendencies in order to alleviate the negative symptoms of traumatic experiences (Droždek & Wilson, 2007; Incayawar, Wintrob, & Bouchard, 2009; Higginbotham & Marsella, 1988; Moodley & West, 2005; Winkleman, 2010). Finally, we have to mention that non-Western medical systems have existed for many centuries and continue to constitute viable treatment alternatives that probably have been used to treat trauma-related disorders and impairments (Marsella, 2010).

Unfortunately, eastern countries do not possess the means of approaching treatments that can handle disorders like this. Overall, the development and validation of psychometric questionnaires is very vital for finding and evaluating symptoms that will help a patient recover from PTSD (Droždek & Wilson, 2007).

### **Posttraumatic Stress Disorder Checklist PCL-5**

The Posttraumatic Stress Disorder Checklist is one of the most commonly studied and used assessment instruments for PTSD (Weathers, Litz, Herman, Huska, & Keane, 1993; Weathers et al., 2013). The scale was recently updated to comport with changes to the PTSD symptom criteria adopted in the DSM-5 (American Psychiatric Association, 2013). It is a reliable screening instrument for PTSD in community samples (Ashbaugh, Houle-Johnson, Herbert, El-Hage, & Brunet, 2016; Biehn et al., 2013). Although studies have examined the previous version of the PCL in different cultural contexts like China, Sri Lanka and Chile, only one published study validated the newer PCL-5 in a language other than English (French). In this study, undergraduate students in France and England completed PCL-5 online, where the French version showed the same psychometric properties as the English version (Ashbaugh et al., 2016). In Turkish psychiatric patients with PTSD, major depressive disorder and a community group there was found that PCL-5 demonstrated good reliability (Boysan et al., 2017). The same results with high internal consistency of the questionnaire was found by a clinical sample of trauma exposed in German population (Krüger-Gottschalk et al., 2017) and a Kurdish and Arab population as well (Ibrahim, Ertl, Catani, Ismail & Neuner, 2018). Further a sample of Japanese adults confirmed a good internal consistency of PCL-5 (Ito, Takebayashi, Suzuki & Horikoshi, 2019).

Concerning the convergent validity of PCL-5, previous studies with German trauma exposed population showed a high correlation with CAPS-5, which is also a questionnaire of PTSD (Krüger-Gottschalk et al., 2017). Kurdish and Arabic war-exposed adults showed an adequate convergent validity of PCL-5 (Ibrahim, Ertl, Catani, Ismail & Neuner, 2018) and Japanese population demonstrated the same results (Ito, Takebayashi, Suzuki & Horikoshi, 2019).

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The Turkish people with PTSD, depression and a community group showed strong associations not only with the total but also with the sub-scale scores of the PCL-5 with other measures of trauma-related symptoms were indicative of construct validity of the screening tool. There no previous studied regarding the interrater reliability of PCL-5 but a in a military veteran's population the CAPS-5 questionnaire, which is also a PTSD measure tool showed high interrater reliability (Weathers et al., 2018). Finally, the factor analysis confirmed by German population in form of Confirmatory Factor Analysis (Krüger-Gottschalk et al., 2017)

According to factor analysis of PTSD the DSM-5 revised the diagnostic structure from a three-factor-model with 17 symptoms to a four-factor-model comprising 20 symptoms (Elhai & Palmieri, 2011). Criterion B (reliving) had minor changes, criterion C was separated into two criteria (avoidance and negative cognitions/moods) and in criterion D (alterations in arousal/ reactivity) a specification for anger expression and an additional symptom of reckless or self-destructive behaviour had included (Yufik & Simms, 2010)

Several published studies have tested whether this 4-factor structure can be supported when applying factor analysis to the PCL-5 (Boysan et al., 2017; Wang et al., 2015; Armour, Contractor, Shea, Elhai & Pietrzak, 2016). The DSM-5 model had little conformity with the data. Even in those few instances where good conformity was found for DSM-5 model, still there were other models that provided substantially better fit (Bovin et al., 2016; Keane et al., 2014). Summarizing the aforementioned, there is as weak support as to the application of four factor DSM-5 model to PCL-5.

At present, there is no known evidence that prove the validation of PCL-5 in Balinese population. The PCL-5 is used to assess the DSM-5 symptoms of PTSD. It is composed of 20 items and contains four subscales corresponding to the four symptom clusters: namely intrusion,



avoidance, negative alterations of cognitions in mood and behavior and alterations in arousal and negativity. They are internally linked (Sveen, Bondjers, & Willebrand, 2016).

### ***Risk Factors***

Risk factors, such as personal, interpersonal and transnational, can provide information about people that are most vulnerable to suffer from mental health complaints. Various studies have proved gender differences in PTSD. Females are approximately twice as likely as males to develop PTSD following exposure to a traumatic event (Breslau et al., 1998 & Kessler et al., 1995). A meta-analysis by Tolin and Foa (2006) found that females were at greater risk for developing PTSD despite reporting exposure to fewer traumatic events than males. In terms of vulnerability factors more specific to PTSD, the disorder is more likely to occur after prolonged trauma or interpersonal traumatic events (Brewin, 2000). According to Ogle, Rubin, & Siegler (2013) in their study showed that cumulative exposure to potentially traumatic events increases the risk of PTSD symptoms.

Epidemiological studies suggest that most people with PTSD have comorbid disorders, particularly depression, anxiety disorders, and substance use disorder (Kessler et al., 1995). These high rates of comorbidity may be explained by psychiatric disorders predisposing people to experience traumatic events, or by traumatic events or PTSD itself triggering the development of other psychiatric conditions (Breslau et al., 1997).

While the majority of people who have experienced difficult losses manage to adjust, a significant number will suffer from mental distress. It is observed that recovery is slower after violent losses than losses from natural deaths. Situational risk factors, such as witnessing the death or finding the deceased, can play an important role in how people and families are affected and adjusted to their loss (Kristensen, Weisæth, & Heir, 2012). At this point, there is no previous

studies regarding the difference of been present in a accident or the information from another source (watching TV, hear from a friend etc.).

The most difficult for a parent to cope with is the loss of a child and it is higher than losing a parent. It also violates the usual custom of a child burying a parent because a parent has to bury a child in this situation. The loss of a child can cause severe physiological and psychological traumas such as depression, cognitive and physical symptoms, anxiety and even PTSD. It can persist longer even after the death of the child and can lead to psychiatric conditions and grief disorders (Christiansen, Elklit & Olf, 2013).

### *Aims of the study*

To date, there is a lack of studies assessing the psychometric properties of PCL-5 in non-western societies, like Bali. The recent changes in the definition and diagnostic criteria of PTSD created an urgent need to revise the instruments available to measure the construct. There is one aim of this study: Namely to assess the psychometric quality among Balinese population. This is assessed in multiple ways. The first is to assess the validity of PCL-5 in the Balinese population. Convergent validity will be assessed by comparing PCL-5 with cumulative trauma and depression symptoms questionnaires. Secondly the reliability was assessed by internal consistency and interrater reliability. A positive relationship between PTSD symptoms, depressive symptoms and cumulative trauma experiences was expected. Furthermore, we assessed construct validity by using solid models and the theory that was mentioned above, according to the content and the concurrent theoreticians. We predicted higher PTSD symptoms in women than men and we expected that parents who lost a child would face more PTSD symptoms than other type of the relationship with the deceased and which were the differences among people who were presence at the accident and of those who weren't. Finally, factor

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analysis was used to examine the factor structure of the PCL-5. Based on previous studies, it was expected to find four symptom clusters that PCL-5 is based on. The above analyses are conducted in a sample of Balinese at risk for PTSD.

### METHODS

#### *Participants*

Male and female participants who are 18 years old and over and had lost a relative, spouse or relative-in-law due to a traffic accident, were included. This study has excluded not only the participants who lost someone more than three years before the study took place, but also participants who did not have fluency in Bahasa Indonesia. The language of Balinese dwell of aggregate sub-languages. This study was translated to only Bahasa Indonesia in order to obtain a clear written record (Table 1.)

#### *% Distribution of demographic characteristics*

	N (%)
Victim's Gender	
Male	201 (66.8)
Female	100 (33.2)
Gender of Participant	
Male	172 (57.1)
Female	129 (42.9)
Stay together before the victim dies	
Yes	285 (94.7)
No	16 (5.3)
Directly involved in accident	
Yes	9 (3.0)
No	292 (97.0)
Relationship between respondent and victim	

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Father	52 (17.3)
Mother	45 (15.0)
Child	89 (29.6)
Spouse (Wife/Husband)	59 (19.6)
Sibling	45 (15.0)
Other	11 (3.7)
Age of Victim (mean $\pm$ sd)	43.99 $\pm$ 21.86
Age of Participant (mean $\pm$ sd)	44.16 $\pm$ 15.16

Table 1. Demographic distribution

### *Procedures*

By this cross-sectional survey of this project, the addresses and names of grieving persons (n=301), were given through the administration from the University of Udayana, insurance companies and the largest public hospital in Bali, the Sanglah Hospital. The snowball sampling method has been used to recruit the participants of the project.

Two questionnaires of the study have been interpreted (PCL, LEC) from two bilingual Public Health Medical doctors. The translation of the Quick Inventory of Depressive Symptomatology (QIDS) has been obtained from another study which took place in Jakarta (Arjadi, Nauta, Utoya & Bckting, 2017). Following, the translated questionnaires were critically reviewed, mainly focusing on the comprehensibility, relevance and cultural appropriateness.

The collection of data was achieved by interviewing the participants at home. The criteria used in order to select these interviewers encompassed their relevant competence, commitment to the research, their study major and finally their progress. In order to carry out this project, the research team consisted of students from medical, psychological and health background in their senior year of studies. The next phase after the selection consisted of a three-day training, part of which was workshops on research skills and the administration of questionnaires.

### *Measures*

The participants were enquired to fill out many questionnaires including the PCL, the QIDS and LEC-5. Furthermore, all participants were asked questions about multiple demographic information like gender and age of the participants but this study will focus on details about the nature of their relationship to the deceased and their engagement in the accident.

**The PTSD Checklist for DSM-5.** The PCL-5 is a 20-item self-report questionnaire designed to measure of DSM-5 PTSD (Weathers et al., 2013). It is used in quantifying severity of PTSD symptoms. Respondents rated how much a problem described in the item bothered them over the past month (e.g. Having difficulty falling or staying asleep). It is rated on a 5-point Likert-type scale which for each symptom, respondents have a severity rating ranging from 0 to 4 that recognize the level of distress associated with each symptom (0 = “not at all” to 4 = “extremely”). The PCL-5 has 4 symptom clusters, namely, intrusion, avoidance, alterations in arousal and reactivity and negative alterations in cognition and mood. Item scores can be summed for an overall severity score as well as for individual symptom cluster sums (Verhey et al., 2013).

**Posttraumatic Stress Disorder Checklist (PCL).** The LEC-5 is a self-report questionnaire asking for the prevalence of 16 potentially traumatic life-time events plus an added open category (“any other very stressful event or experience”) with five answer categories (Gray, 2014). The respondents were asked to indicate whether they have experienced, witnessed, or learned about different traumatic events, or any other particularly distressing experiences. These items include life events such as natural disasters, physical or sexual aggression, severe injuries, violent death (homicide or suicide), and others. For each situation, the respondent is asked to indicate the type

of exposure (i.e., whether he/she experienced the event directly or witnessed an event or situation involving a close relative or friend and if it was related to occupational activities).

**Quick inventory of depressive symptomatology (QIDS).** The QIDS is a tool which is used to screen for depression. It involves 16 basic questions which involves the basic daily life of an individual like their sleep pattern and hours, concentration, their thoughts on their life to examine whether they have one disorder or more. For example this tool shows the response people with symptoms of depression in their past days. The scale to recognize the intensity of depressive symptoms, was the Likert scale. Likert scale is allows a researcher to contact linear set of responses that increase or decrease in tension. It's a closed type opt of answer which is categorized from 1 (the least), up to 5 (the most). Cronbach's Alpha in the present study is a measure of internal consistency, that is, how closely related a set of items are as a group (Maccani et al., 2012).

### *Statistical analyses*

Statistical analyses were performed using IBM SPSS Statistical Package Version 20 (IBM Corp., 2011). Missing values were replaced using person mean imputation (Enders, 2003). We used frequency tables to present demographical characteristics. For the study variables PCL-5, LEC-5 and QIDS are presented the mean value, the standard deviation (SD), and the range (min-max). To assess the convergent validity, Pearson correlations were computed among PCL-5, LEC-5 and QIDS. To assess the construct validity, Mann-Whitney non parametric test was used to examine differences between two independent groups on the PCL-5 score. The first group refers to the tolerance within the depressive symptoms among men and women and the second group refers to the people that lost their child and others that have lost another member of their family.

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Cronbach's alpha was used to measure the internal consistency (reliability) of the questionnaires and the interrater reliability. One-way Analysis of Variance followed by Bonferroni's post-hoc comparisons tests were performed to test the effect of Interviewers on PCL-5 score. Finally, factor analysis was used to assess the structure of the PCL-5 questionnaire. All comparisons are two sided and the significance level was set to  $\alpha=5\%$ .

## RESULTS

### *Descriptive Statistics*

Descriptive statistics for the total scores of study questionnaires PCL-5, LEC-5 and QIDS are shown in the Table 2.

Table 2

*Descriptive statistics for the total scores of PCL-5, LEC-5 and QIDS.*

	N	Min	Max	Mean (SD)
PCL-5	301	0.00	45.00	7.01 (6.55)
LEC-5	301	0.00	4.00	0.58 (0.90)
QIDS	301	9.00	19.00	11.45 (2.07)

### *Convergent Validity*

A Pearson's correlation analysis indicated that PCL-5 and QIDS were moderately positively correlated,  $r(299) = 0.57, p < .001$ . The correlation between PCL-5 and the LEC-5 was not statistically significant,  $r(299) = 0.01, p = .898$ .

### ***Construct Validity***

A Kolmogorov-Smirnov test, indicated that PCL-5 total score was not normally distributed,  $D(301) = .189, p < .001$ . For this reason, Mann-Whitney non parametric test was performed to examine differences between two independent groups on PCL-5 total score.

Firstly, we found a statistically significant effect of gender in PCL-5 total score, with women ( $Mdn = 6.00; IQR = 4.00$  to  $10.00$ ) receiving higher scores than men ( $Mdn = 4.00; IQR = 3.00$  to  $7.00$ ),  $U = 8669.0, p = .001, r = .19$ .

Also, for our sample, it can be concluded that the total score of PCL-5 was significantly higher in participants who lost a child ( $Mdn = 7.00; IQR = 3.50$  to  $12.00$ ) than in participants who lost another family member ( $Mdn = 4.00; IQR = 3.00$  to  $7.00$ ),  $U = 6917.0, p = .001, r = .21$ .

Finally, the participants who were involved directly in the accident ( $Mdn = 9.00; IQR = 4.50$  to  $14.00$ ) had higher scores in PCL-5 scale, than the participants who heard about the accident ( $Mdn = 5.00; IQR = 3.00$  to  $9.00$ ), but this result was not statistically significant,  $U = 823.5, p = .055, r = .11$ .

### ***Internal consistency (Reliability Analysis) + Inter-rater reliability***

Internal consistency of study's questionnaires was measured by Cronbach's alpha index. The alpha was 0.87 for PCL-5 for the total sample, and divided by interviewer, alpha ranged from 0.79-0.90 for PCL-5, which showed good internal consistency. The results are presented in Table 3.



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There was a statistically significant difference on PCL-5 total score between interviewers as determined by one-way ANOVA ( $F(3,297) = 4.69, p = .003$ ). A Bonferonni post hoc test revealed that the score of PCL-5 was higher for Interviewer 1 ( $8.81 \pm 7.15$ ) compared to the Interviewer 2 ( $5.99 \pm 6.70, p = .04$ ) and Interviewer 3 ( $5.35 \pm 4.07, p = .01$ ). There was no statistically significant difference between the Interviewer 1 and Interviewer 4 ( $p = 1.00$ ). Moreover, there was no statistically significant difference among Interviewers 2, 3 and 4 ( $p > .05$  for all).

Table 3

*Internal consistency and descriptives for PCL-5 by interviewer.*

	N	$\alpha$	M (SD)
<b>Total Sample</b>	<b>301</b>	<b>0.87</b>	<b>7.02 (6.55)</b>
Interviewer 1	74	0.85	8.81 (7.15)
Interviewer 2	75	0.90	5.99 (6.70)
Interviewer 3	74	0.79	5.35 (4.07)
Interviewer 4	78	0.88	7.88 (7.31)

### *Factor analysis*

A principal axis factor analysis was conducted on the 20 items with varimax rotation. The Kaiser Meyer Olkin (KMO) index (0.842) and Bartlett's test of Sphericity ( $\chi^2(190) = 2458.89, p < .001$ ) indicated that correlation matrix was suitable for factor analysis. An initial analysis was run to obtain eigenvalues for each factor in the data. Six factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 67.49% of the total variance. The scree plot (see Figure 1) was ambiguous and showed inflexions that would justify retaining either 4, 5 or 6 factors. We retained 4 factors (explained 56.41% of the total variance) because of the large sample size and

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the convergence of the scree plot and Kaiser's criterion on this value. Table 4 shows the factor loadings after rotation.

Table 4

*Summary of exploratory factor analysis results for the SPSS PCL questionnaire (N = 301).*

	Item	Factor 1	Factor 2	Factor 3	Factor 4
Intrusion	Item 1		.786		
Intrusion	Item 2		.720		
Intrusion	Item 3		.565		
Intrusion	Item 4	.503	.410		
Intrusion	Item 5	.503	.580		
Avoidance	Item 6	.576	.402		
Avoidance	Item 7			.337	
NACM	Item 8	.583			
NACM	Item 9			.340	
NACM	Item 10	.506			
NACM	Item 11	.578			
NACM	Item 12	.536		.342	.343
NACM	Item 13			.563	
NACM	Item 14			.751	
Alterations in arousal and reactivity	Item 15	.439			
Alterations in arousal and reactivity	Item 16				.948
Alterations in arousal and reactivity	Item 17		.612		
Alterations in arousal and reactivity	Item 18	.588	.358		
Alterations in arousal and reactivity	Item 19	.566	.408		
Alterations in arousal and reactivity	Item 20	.586	.389		
Eigenvalues		6.419	2.149	1.452	1.261
% of variance		32.097	10.745	7.261	6.307

*NACM: Negative alterations in cognition and mood*

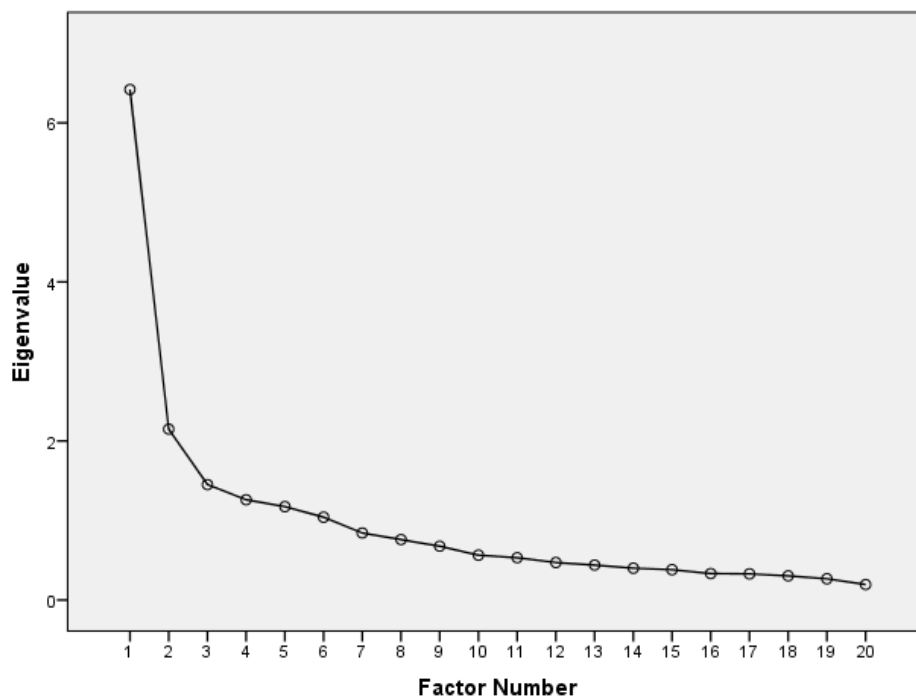


Figure 1. A scree plot of the factor numbers against eigenvalue.

## DISCUSSION

Post-traumatic stress disorder (PTSD) is an anxiety disorder that affects people's lives on many levels. It is common in people to develop it after living through a tragic event, such as the sudden death of a loved one. PTSD may cause irritability, anger, sleep problems, disturbances in relationships, isolation, etc. However, with the right approach, PTSD is a disorder that can be treated (Kar, & Bastia, 2006). Many Western countries use questionnaires to measure and evaluate PTSD symptoms, such as the Posttraumatic Stress Disorder Checklist (PCL-5) which is stressing out the symptoms of the PTSD.

In Bali, there is an increased number of accidents that may be associated with PTSD. Due to Balinese culture, the treatment of this disease is approached in a spiritual way. For this reason,

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convergent validity, construct validity, reliability and factors of the PCL-5 were studied (Sveen, Bondjers, & Willebrand, 2016).

The aim of the present research was to study the psychometric quality of the PCL in the Balinese sample. Firstly, the good internal consistency of Balinese population with PCL-5 confirm with previous research in many different populations and cultures (Boysan et al., 2017; Krüger-Gottschalk et al., 2017; Ibrahim, Ertl, Catani, Ismail & Neuner, 2018; Ito, Takebayashi, Suzuki & Horikoshi, 2019). This confirms our hypothesis that the PCL-5 is a reliable instrument which can be used by number of countries. Inconsistent with what expected the correlation between PCL-5 and the LEC-5 was not statistically significant and with QIDS were moderately positively correlated. These mixed results may be related that the Balinese population expressed in different way their loss, their depression and their grief. Also, it should be noted, that there are no standard criteria to decide what constitutes a good performance of a screening instrument (Baldessarini, 1983) as the relative importance of specificity depends on the nature of the diagnostic situation. Moreover, concerning the construct validity, it was found that women experience overall more PTSD symptoms compared to men. The Network Startup Center Resource estimates that the prevalence of PTSD in American men was 3.6% and in American women 9.7%. It is clear that PTSD occurs more in women than in men. Men generally experience more traumatic events in their lives, however women have more serious traumatic experiences (Epidemiology Facts of PTSD, US Department of Veteran Affairs, <https://www.ptsd.va.gov/professional/PTSD-overiview/epidemiological-facts-ptsd.asp>, last access September 30, 2020). Also, there was no statistically significant difference for participants who were involved directly in the accident had higher scores in PCL-5 scale and the participants who heard about the accident. This no difference can be explained by the changes of diagnostic criteria from DSM-IV to DSM-5.

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According to DSM-5 the PTSD can be created from not only directly experience of the traumatic event but also by witnessed in person, learns that traumatic event occurred to a close person or extreme exposure to aversive details of the traumatic event (APA,2013).The current survey was of construct validity because the outcomes were similar to those with previous surveys, however the interpretability was quite difficult as there are no applicable models for the Balinese population. Furthermore, for our sample, it concluded that the total score of PCL-5 was significantly higher in the participants that lost their child than in the participants that lost another family member. Applebaum & Burns (1991) showed that 35 percent of parents who lost a child unexpectedly met the criteria for PTSD while, Murphy, Johnson, Chung & Beaton (2003) found that 28 percent of mothers still had symptoms of PTSD, while 12.5 percent of fathers did, five years after a child's suicide. In PCL-5 a good interrater reliability was found. At this point, no other studies found to confirm our hypothesis. Further future research should investigate the interrater reliability of PCL-5.

Finally, according to the results about factor analysis, we come to the conclusion that this study does not confirm the PCL-5 factors. The resulting factors have no overlap with the four factors that are found in other literature (namely intrusion, hyperactivation etc.), and they do not have a unique interpretation. According to literature, the items that cluster on the same factor suggest that factor 1 represents the intrusion and being alert of something (Yufik & Simms, 2010).

The results on the other hand showed that the participants feeling upset about their stressful experiences, they are facing a trouble to remember and concentrate on things, avoidance and blaming themselves. Moreover, according to these results, they lost their interest, they have outburst and irritable behavior with the difficulty to falling asleep. The literature proposed that factor 2 represents the avoidance. The results of the study showed mixed results with the

participants express repeated with strong physical reactions when they remember their stressful experiences and they are watchful and alert. Factor 3 represents the negative alterations in mood and behavior. Although, the results showed that the participants can also express their avoidance of reminders of stressful experiences and their unwellness to feel positive with keeping distance with other or having negative beliefs about the world. Finally, factor 4 represents the arousal and reactivity. On the contrary, this study has shown that the participants expressed the possibility to cause harm. Emotional expression in ways of collectivism are even more restrictive and as a result their feeling of joining the society is repressed. Another factor that might have an effect to the participants is that the PTSD period is expressed in a unique way in each person and not at the same time as well.

### ***Strengths and Limitations***

Concerning the strengths, this study consists of a large sample (n=301). The number of the sample can give a more generally interpretation about how Balinese cope the PTSD and the reliability of the questionnaire (the wide range of age and educational variables). Moreover, another strength is the comparison with other questionnaires (QIDS, LEC-5 etc.) which can lead as to a better understanding of Balinese population.

On the other hand, the present study had several limitations to be addressed. First, the social desirability has to be taken into account. The way of each participant interprets the questions and how he deals with PTSD can be influence the results. Although there is a self-report, the aid by the interviewers can affect the outcome. Finally, the results of the study are not generalizable to other cultures or other ages because this study did not include people who are Balinese but they do not live in their country and teenagers and children population.

### ***Future research***

The findings of this study can be seen as evidence of a preliminary aspect and replication is required for future research. The results underscore the need to systematically investigate the factor structure of the PCL-5 and PTSD symptoms in other non-western society large samples. This study provides a potential foundation for further investigations into mental health and trauma of Balinese populations as well as a tool for the screening of affected individuals by local health services. In order to validate the findings, the research should explore the content of validity (interrater). The mechanisms referring to the current study, could be of great use in the future for the treatment of PTSD. The essential symptoms of PTSD indicate the experiences that can be painful after a loss of a familiar person. The difficult part is that a way of understanding which shows the pathological factors of PTSD should be used in order to underline the critical points of the survey. In addition, the results of the present research showcase that the application of the PCL-5 needs to be examined more, always taking into account the background and culture of the sample, as well as gender.

### ***Conclusion***

In conclusion, the PCL-5 can be seen of much use as an instrument of screening, and can allow for the better delivery of mental health intervention. The present study provides relevant evidence regarding the reliability and validity of PCL-5. If there has to be a further validation, further research has to be conducted as well. It is suggested that future studies can utilize the present paper in order to conduct other standard assessments in diverse groups of non-western culture, which can allow for further evidence to be provided towards PCL-5.

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