
[STA] Submission Acknowledgement

1 pesan

Wutiphol Sintunavarat via Thai Journals Online (ThaiJO) <admin@tci-thaijo.org>

19 November 2020 pukul 17.58

Balas Ke: Wutiphol Sintunavarat <wutiphol@mathstat.sci.tu.ac.th>

Kepada: Pada Lumba <padalumba@gmail.com>

Pada Lumba:

Thank you for submitting the manuscript, "Effects of Sleep Deprivation on Probability of Traffic Violations in Motorcyclists; Analysis Using Bayesian Network" to Science & Technology Asia. With the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the journal web site:

Manuscript URL: <http://ph02.tci-thaijo.org/index.php/SciTechAsia/authorDashboard/submission/242474>

Username: padalumba

If you have any questions, please contact me. Thank you for considering this journal as a venue for your work.

Wutiphol Sintunavarat

Science & Technology Asia

Research Administration Division

Thammasat University (Rangsit Campus)

Khlong Nueng, Khlong Luang, Pathum Thani 12120 Thailand

+66-2564-4440-49 Ext. 1810

[STA] Editor Decision

3 pesan

Chatchada Wutthichokdamrong via Thai Journals Online (ThaiJO) <admin@tci-thaijo.org>

26 Maret 2021 pukul 15.54

Balas Ke: Chatchada Wutthichokdamrong <sciencetechnologyasia@gmail.com>

Kepada: Pada Lumba <padalumba@gmail.com>, Bambang Edison <bambang.edison@gmail.com>, Khairul Fahmi <fahmi_riau@yahoo.co.id>, Arie Syahrudin <ariesibarani@gmail.com>, Anton Ariyanto <anton.ariyanto@gmail.com>, Arifal Hidayat <arifalhidayat@upp.ac.id>, Alfi Rahmi <Alfirahmi.upp@gmail.com>, Rismalinda <rismalinda.risdick@gmail.com>

Dear Pada Lumba, Bambang Edison, Khairul Fahmi, Arie Syahrudin, Anton Ariyanto, Arifal Hidayat, Alfi Rahmi, Rismalinda,

I am writing to you concerning your paper entitled "Effects of Sleep Deprivation on Probability of Traffic Violations in Motorcyclists; Analysis Using Bayesian Network", which you submitted to Science & Technology Asia.

Based on the advice received, we have decided that your manuscript can be accepted for publication after you have carried out the corrections as suggested by the reviewer(s).

Below, please find the reviewers' comments for your manuscript.

Please submit your revised manuscript by accessing the system of Science & Technology Asia.

-
sciencetechnologyasia@gmail.com

Reviewer B:

General Comments

There are many grammatical errors and typographical errors in this article. The authors should consider having an article editing service. In the analysis, the age variable is not employed but it is shown in Table 1. The explanation of the Bayesian network analysis should be provided; especially, how it is applied in this article. How can the authors make the first conclusion in Section 4? Should there be a statistical test?

Detailed Comments:

- In abstract, "violayion" should be "violation"; "is base on" should be "is based on"; "traffiv accideny" should be "traffic accident"
- In Section 1, the sentence "Driver fatigue is caused by several factors including: lack of rest, long travel times and monotonous roads [2]" is in the first paragraph, whereas another similar sentence "monotonous roads, long travel duration, and lack of rest can cause fatigue to drivers [2]" is in the third paragraph. These repetitions appear redundant to readers.
- In Section 1, the sentence "Car drivers whose sleep is deprived will enter wrong lanes by 8.1 times greater than those who sleep normally [6]" is in the second paragraph, whereas another similar sentence "Drivers whose sleep is deprived enter wrong lanes by 8.1 times greater than those who sleep normally [6]" is in the fifth paragraph. These repetitions appear redundant to readers.
- In the third paragraph of Section 1, "driving round the bend" should be "driving around the bend".
- Please be specific on the percentage in the sentence (decreased when compared with the previous year??) "Meanwhile in 2013, 2014 and 2015, the number of motorcycle accidents decreased by 12.55%, 9.57% and 14.18%, respectively" in the eighth paragraph in Section 1.
- In the last paragraph in Section 1, "two factors reviewed in this paper were human factor, road and environment" appear confusing. Should it be "three factors"? Or should it be "two factors reviewed in this paper were human factor and road and environment".
- In equation (2.1), the notation "-A" should be defined. Is it "A complement" (normally denoted by A')?
- The adopted minimum sample size equation seems to be Yamane's equation that is appropriate for estimating a proportion. Should there be a minimal sample size for the Bayesian network analysis?
- On the line after equation (2.2), "82,578" should read "82.578".
- In Table 1, the abbreviations W, W1, W2, W3, W4, LP, LP1, LP2, LP3, SJ, SJ1, SJ2, GM, GM1, GM2, KJ, KJ1, KJ2, L, L1, L2, JP, JP1, JP2, PP, PP1, PP2 and PP3 should explicitly be shown.

- In Table 1, "Traffic violations" should be "Probability of traffic violation"
- The percentage values for no.9 are 50, 23.83 and 26.17, but Fig.1 and the third paragraph of Section 3 show the corresponding percentage values of 50, 26 and 24.
- In No.5 in Table 1, "Hilly and Bending" should read "Hilly or Bending".
- In Figures 1 and 2, in the W box, "W2=7.668" should read "W2=47.668".
- In Figure 1, the definitions of JP, JP1 and JP2 should be provided.
- In Section 3.1, the sentences "driving time also affects air temperature, especially when driving during the day that air temperature is hotter than other times. Fatigue conditions coupled with traffic conditions and hot temperatures will certainly make motorcyclists more fatigued so that they will be at risk of accidents" are in the first paragraph, whereas the similar sentences "driving time also affects air temperature, especially when driving during the day that air temperature is hotter than other times. Fatigue conditions coupled with traffic conditions and hot temperatures will certainly make motorists more fatigued easily so that they will be at risk of accidents" are in the second paragraph. These repetitions appear redundant to readers.
- In the paragraph before Fig.2, "...tends not to increase..." should read "does not tend to increase..."
- In the paragraph before Fig.3 and in Section 4, "6 hours and less" should be "6 hours or less"

Recommendation: Revisions Required

Reviewer D:

1. Too many typos in the abstract.
2. The introduction is confusing with many statistics from different sources and years mixed up together.

The author should reorganize the writing to make it more readable.

3. result of equation 2.2 is 82.6 not 82,578
4. The number of variables, which are used to calculate probability of accident, is set to 3. The author should provide explanation on why these variables are selected over the others.
5. Please provide detail of the questionnaire.
6. Provide detail on how probability of accidents are calculated.
7. The author should analyse data by using Structure learning for bayesian networks.

Recommendation: Resubmit for Review

Science & Technology Asia
 Research Administration Division
 Thammasat University (Rangsit Campus)
 Khlong Nueng, Khlong Luang, Pathum Thani 12120 Thailand
 +66-2564-4440-49 Ext. 1810

PADA LUMBA <padalumba@gmail.com>
 Kepada: padalumbaat@yahoo.com

26 Maret 2021 pukul 16.36

[Kutipan teks disembunyikan]

PADA LUMBA <padalumba@gmail.com>
 Kepada: nusinursari151170@gmail.com

26 Maret 2021 pukul 16.48

[Kutipan teks disembunyikan]

Effects of Sleep Deprivation on Probability of Traffic Violations in Motorcyclists; Analysis Using Bayesian Network

Reviewer B

Number	Comments to the Author	After revision by author
1	In abstract, “violayion” should be “violation”; “is base on” should be “is based on”; “traffiv accideny” should be “traffic accident”probability of traffic violation in motorcyclists. The accident rate for motorcyclists in Indonesia is quite high. This is based on statistical data that 70.93% of traffic accident This revision was in abstract section
2	In Section 1, the sentence “Driver fatigue is caused by several factors including: lack of rest, long travel times and monotonous roads [2]” is in the first paragraph, whereas another similar sentence “monotonous roads, long travel duration, and lack of rest can cause fatigue to drivers [2]” is in the third paragraph. These repetitions appear redundant to readers.	The sentence in the third paragraph had been erased
3	In Section 1, the sentence “Car drivers whose sleep is deprived will enter wrong lanes by 8.1 times greater than those who sleep normally [6]” is in the second paragraph, whereas another similar sentence “Drivers whose sleep is deprived enter wrong lanes by 8.1 times greater than those who sleep normally [6]” is in the fifth paragraph. These repetitions appear redundant to readers.	The sentence in the fifth paragraph had been erased
4	In the third paragraph of Section 1, “driving round the bend” should be “driving around the bend”.	driving around the bend This revision was in the third paragraph in section 1
5	Please be specific on the percentage in the sentence (decreased when compared with the previous year??) “Meanwhile in 2013, 2014 and 2015, the number of motorcycle accidents decreased by 12.55%, 9.57% and 14.18%, respectively” in the eighth paragraph in Section 1.	Meanwhile, based on data from the Police of Bekasi City showed that there were 484 motorcycle accidents case in Bekasi in 2011. Furthermore, in 2012 the number of accidents increased by 8.68% (526 case). Meanwhile, in 2013, 2014 and 2015, the number of motorcycle accidents decreased by 12.55% (460 case), 9.57% (416 case) and 14.18% (357 case), respectively. This revision was in eight paragraph in section 1
6	In the last paragraph in Section 1, “two factors reviewed in this paper were human	This paper aimed to analyze three factors which affected the probability of traffic

	factor, road and environment” appear confusing. Should it be “three factors”? Or should it be “two factors reviewed in this paper were human factor and road and environment”.	violation in motorcyclists. Three factors.... This revision was in the last paragraph in section 1
7	In equation (2.1), the notation “-A” should be defined. Is it “A complement” (normally denoted by A’)?	This revision was in note in figure 1 in section 2
8	The adopted minimum sample size equation seems to be Yamane’s equation that is appropriate for estimating a proportion. Should there be a minimal sample size for the Bayesian network analysis?	Determination of the minimum of sample size for Analysis of the Bayesian network is not different from other research cases. In this study was used formula to determine of the minimum sample size : $n = \frac{N}{1 + Ne^2}$
9	On the line after equation (2.2), “82,578” should read “82.578”.	$n = \frac{474}{1 + 474(0.1)^2} = 82.578$ responden This revision was in section 2
10	In Table 1, the abbreviations W, W1, W2, W3, W4, LP, LP1, LP2, LP3, SJ, SJ1, SJ2, GM, GM1, GM2, KJ, KJ1, KJ2, L, L1, L2, JP, JP1, JP2, PP, PP1, PP2 and PP3 should explicitly be shown.	This revision was in Table 1 in section 2
11	In Table 1, “Traffic violations” should be “Probability of traffic violation”	This revision was in Table 1 in section 2
12	The percentage values for no.9 are 50, 23.83 and 26.17, but Fig.1 and the third paragraph of Section 3 show the corresponding percentage values of 50, 26 and 24	In Table 1, it should be : Sleep duration ≤ 6 hours = 50% 6 hours < Sleep duration ≤ 7 hours = 26.17% Sleep duration > 7 hours = 23.83% This revision was in Table 1 in section 2
13	In No.5 in Table 1, “Hilly and Bending” should read “Hilly or Bending”.	This revision was in No. 5 in Table 1 in section 2
14	In Figures 1 and 2, in the W box, “W2=7.668” should read “W2=47.668”.	This revision was in Figure 3, Figure 4 and Figure 5
15	In Figure 1, the definitions of JP, JP1 and JP2 should be provided.	This revision was in note of Figure 1
16	In Section 3.1, the sentences “driving time also affects air temperature, especially when driving during the day that air temperature is hotter than other times. Fatigue conditions coupled with traffic conditions and hot temperatures will certainly make motorcyclists more fatigued so that they will be at risk of accidents” are in the first paragraph, whereas the similar sentences “driving time also affects air temperature,	The sentence in the second paragraph in section 3.1 had been erased

	especially when driving during the day that air temperature is hotter than other times. Fatigue conditions coupled with traffic conditions and hot temperatures will certainly make motorists more fatigued easily so that they will be at risk of accidents” are in the second paragraph. These repetitions appear redundant to readers.	
17	In the paragraph before Fig.2, “...tends not to increase...” should read “does not tend to increase...”	The level of alertness of the motorcyclist does not tend to increase when he is on a straight road, but will tend to increase when he is at a bend [7]. This revision in paragraph 6 in section 3.1
18	In the paragraph before Fig.3 and in Section 4, “6 hours and less” should be “6 hours or less”	Revision in the abstract in the paragraph in Figure 3 above in the paragraph in Figure 3 below in the paragraph in Table 2 above in the last paragraph in section 3.1 in the number “b” in section 4 in the number “d” in section 4

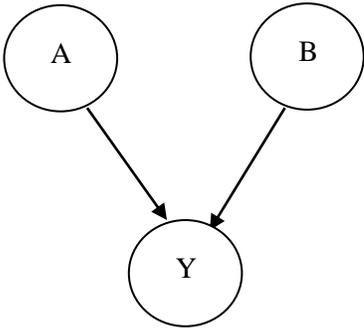
Effects of Sleep Deprivation on Probability of Traffic Violations in Motorcyclists; Analysis Using Bayesian Network

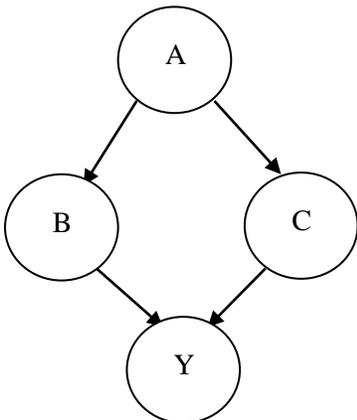
Reviewer D

Number	Comments to the Author	After revision by author
1	Too many typos in the abstract	This study focuses on the effects of sleep deprivation on the night before accident on probability of traffic violation in motorcyclists. The accident rate for motorcyclists in Indonesia is quite high. This is based on statistical data that 70.93% of traffic accident occurring from July to December 2015 in Indonesia involved motorcyclists. The study took place in Bekasi City, Indonesia. Samples consisted of 214 respondents who had had an accident. Analyzing probability of violation of motorcyclists using a Bayesian network. Some variables affecting the probability of traffic violation, among others are: travel time, road side variability, road geometry, road conditions, driving time, fatigue, travel distance for 1 year. The results of analysis show a probability of violation by 50% for motorcyclists sleeping 6 hours or less, and 26% for those sleeping over 6 hours to 7 hours, and 24% for those sleeping over 7 hours. This revision was in abstract section

<p>2</p>	<p>The introduction is confusing with many statistics from different sources and years mixed up together. The author should reorganize the writing to make it more readable.</p>	<p>Fatigue will reduce driver's ability to drive safely [1]. This fatigue is caused by several factors including: lack of rest, long travel times and monotonous roads [2]. In addition, fatigue and motorcyclist behavior on the road are also affected by driver's occupation, travel duration, work routines, driving at midnight, use of stimulants, work schedules and speed [3]. Motorcyclists must stop their vehicle when they feel tired. Another study shows that 80 minutes is a safe limit for driving on monotonous roads [4]. The fatigue felt by the driver can also be caused by the driver being sleep deprived.</p> <p>Drivers whose average sleep is less than 5 hours every night have a probability of having an accident due to sleep by almost 5 times greater than accidents caused by other factors [5]. In addition, the drivers who experience collisions due to sleep are likely to drive 20,000 miles or more per year, drive 2 hours or more per day, and drive at night when the atmosphere is dark or drive between midnight and 6 am [5]. Lack of sleep can result in a lack of concentration while driving. Car drivers whose sleep is deprived will enter wrong lanes by 8.1 times greater than those who sleep normally [6]. Another study related traffic violation, motorcyclist who are more economically capable tend to commit violations than those who are less economically capable [9]. Besides the fatigue factor, the road condition factor can also affect the alertness of the driver.</p> <p>The level of alertness of drivers does not increase when driving on a straight road, but it will increase when driving around the bend [7]. Similarly, it is likely that fatigue will occur earlier in monotonous road conditions and low traffic volume [8]. Fatigue will result in reduced alertness of the rider, where driver reaction time has a correlation with variations of driver performance in driving [4]. Another study show that installation of the puppet police, the overall violations drop about twenty percent [11].</p> <p>Location of study located Bekasi City, Indonesia. The city of Bekasi is located not too far from the capital city of Indonesia. This study emphasize on the impact of sleep deprivation on probability of traffic violation in motorcyclists. Indonesia Statistic data mention that the number of motorcycle vehicles is 61,078,188 or 79.42% out of other vehicles [13]. Meanwhile, the average growth of vehicles in Indonesia is 13.43% annually. Accident cases in 2009 in Indonesia showed that there was one accident case every 9.1 minutes and there was one life lost on the road every 20 minutes.</p> <p>The maximum fatal accidents in 2014 occurred in June 2014 to September 2014 [10]. Next period, cases of fatal accidents occurring in Indonesia from June 2015 to December 2015 showed the high number of fatal accident victims every quarter.</p> <p>The distribution of types of accident injuries in Indonesia based on severity and age in the last quarter (from</p>
----------	--	--

		<p>October 2015 to December 2015) shows that road users aged 15-19 years were most vulnerable to traffic accidents with 462 fatal accident and 531 injuries [10].</p> <p>In addition, Accident data from July 2015 to December 2015 based on types of vehicle throughout Indonesia shows the number of motorcycles involved in traffic accidents was relatively higher than other vehicles by 70.93% [10].</p> <p>Meanwhile, based on data from the Police of Bekasi City showed that there were 484 motorcycle accidents case in Bekasi in 2011. Furthermore, in 2012 the number of accidents increased by 8.68%. Meanwhile, in 2013, 2014 and 2015, the number of motorcycle accidents decreased by 12.55%, 9.57% and 14.18%, respectively.</p> <p>In addition, in 2011, the number of motorcyclists who suffered serious injuries in Bekasi was 160 people and in 2012 it decreased to 117 people or decreased by 26.88%. However, in 2013 the number of motorcyclists who suffered serious injuries increased to 131 people or increased by 11.97%. While in the period of 2014 and 2015 the number of motorcyclists who suffered serious injuries in each period by 114 people or reduced by 12.98%, and 45 people or decreased by 60.53% [12]. Such high number of accidents in motorcyclists is caused by the high number of motorcycle users and the high rate of growth of this vehicle annually. Based on above mentioned, it is necessary to conduct a study to reduce the the risk of accidents in motorcyclists.</p> <p>This paper aimed to analyze three factors which affected the probability of traffic violation in motorcyclists. Three factors reviewed in this paper were human factor, road and environment. This factors were analyzed simultaneously to get the probability of traffic violation in motorcyclists. After that, the best prevention can be developed as early as possible to reduce the risk of accident.</p> <p>This revision was in section 1</p>
3	result of equation 2.2 is 82.6 not 82,578	$n = \frac{474}{1 + 474(0.1)^2} = 82.578 \text{ responden}$ <p>This revision was in section 2</p>
4	The number of variables, which are used to calculate probability of accident, is set to 3. The author should provide explanation on why these variables are selected over the others.	<p>Several variables were analyzed in the model of Structure of Bayesian Network including: roadside variability, road geometry, road conditions, long duration of driving, fatigue, driving time, length of driving for one years, traffic violation. Roadside variability and road geometry affects road conditions, whether monotonous or not. Roadside variability is variation of the view on the side of the road, where the road with roadside variability can reduce the level of monotonous of the driver, as well as the conditions of geometric of the road, such as a straight road that is too long can cause</p>

		<p>motorists to experience monotonous conditions and drowse [7].</p> <p>Driving too long can affect the level of monotony and driver fatigue [2], so it is necessary to limit the maximum travel time in order to avoid the risk of accidents. The variable driving time and length of driving for one years can affect fatigue of driver, and even make the driver unable to concentrate properly, it will lead to driver conduct traffic violations, both intentional and unintentional.</p> <p>This revision was from fourth paragraph to sixth paragraph in section 2</p>
5	Please provide detail of the questionnaire	<p>Several questions that were asked to respondents including:</p> <ol style="list-style-type: none"> 1. Age of the driver when the accident occurrence? 2. What time did the accident occur? (06:00 a.m - 12:00 p.m, 12:00 p.m - 06:00 p.m, 06:00 p.m - 12:00 a.m, 12:00 a.m - 06:00 a.m) 3. Long duration of driving before accident? 4. Roadside variability around location of accident? (varied, not varied) 5. Road geometry around location of accident? (Flat and straight, Hilly or Bending) 6. Feeling monotonous before the accident happen? (Monotonous, Unmonotonous) 7. You feel tired before accident happen? (Yes, No) 8. The average distance drive for each day? 9. License? 10. Violate traffic rule before accident? (Yes, No) 11. If yes, what kind of traffic violation was conductrd? (violation in the traffic light, not use helmets, violation of road marking) <p>This revision was in third paragraph in section 2</p>
6	Provide detail on how probability of accidents are calculated.	<div style="text-align: center;">  <pre> graph TD A((A)) --> Y((Y)) B((B)) --> Y((Y)) </pre> </div> <p>Fig. 1. Example of analysis of bayesian network with 3 variables</p>

		<p>Analysis of Bayesian Network in Figure 1 (with 3 variables) can be calculated with the formula:</p> $P(Y) = P(Y A, B) \times P(A) P(B) + P(Y A,-B) \times P(A) P(-B) + P(Y -A,B) \times P(-A) P(B) + P(Y -A,-B) \times P(-A) P(-B)$ <div style="text-align: center;">  <pre> graph TD A((A)) --> B((B)) A((A)) --> C((C)) B((B)) --> Y((Y)) C((C)) --> Y((Y)) </pre> </div> <p>Fig. 2. Example of analysis of bayessian network with 4 variables</p> <p>Analysis of Bayesian Network in Figure 2 (with 4 variables) can be calculated with the formula:</p> $P(Y) = P(Y B,C,A) P(B A) \times P(C A) + P(Y B,-C,A) \times P(-B A) \times P(-C A) + P(Y -B,-C,A) \times P(-B A) \times P(C A) + P(Y -B,-C,A) \times P(-B A) \times P(-C A)$ <p>This revision was in section 2</p>
7	The author should analyse data by using Structure learning for bayesian networks	<p>As an example of the calculations in Table 2, the equation for the probability 1 (one) for drivers sleep at night before accident 6 hours or less :</p> $P(P)1 = P(P W1,L1,JP1,SJ,GM,KJ,LP) \times P(KJ SJ,GM) \times P(L LP,KJ)$ $P(P W1,L1,JP1,SJ,GM,KJ,LP) = 100 \%$ $P(W1) = 35.05\%; P(L1) = 50\%; P(JP1) = 1.87\%$ $P(P)1 = 0.1 \times 0.3505 \times 0.5 \times 0.0187$ $P(P)1 = 0.032\% \text{ (meaning that the motorcyclists who drive in 06:00 a.m. - 12:00 p.m, driver was in fatigue condition, driver drive > 20000 miles per year, this drivers had experienced accident, the percentage of the motorcyclists as above mentioned in the sample was 0.032\%).}$ <p>This revision was in the last paragraph in section 3</p>

[STA] Editor Decision

2 pesan

Chatchada Wutthichokdamrong via Thai Journals Online (ThaiJO) <admin@tci-thaijo.org>

29 Mei 2021 pukul 14.57

Balas Ke: Chatchada Wutthichokdamrong <sciencetechnologyasia@gmail.com>

Kepada: Pada Lumba <padalumba@gmail.com>, Bambang Edison <bambang.edison@gmail.com>, Khairul Fahmi <fahmi_riau@yahoo.co.id>, Arie Syahrudin <ariesibarani@gmail.com>, Anton Ariyanto <anton.ariyanto@gmail.com>, Arifal Hidayat <arifalhidayat@upp.ac.id>, Alfi Rahmi <Alfirahmi.upp@gmail.com>, Rismalinda <rismalinda.risdick@gmail.com>

Dear Pada Lumba, Bambang Edison, Khairul Fahmi, Arie Syahrudin, Anton Ariyanto, Arifal Hidayat, Alfi Rahmi, Rismalinda,

I am writing to you concerning your paper entitled "Effects of Sleep Deprivation on Probability of Traffic Violations in Motorcyclists; Analysis Using Bayesian Network", which you submitted to Science & Technology Asia.

Based on the advice received, we have decided that your manuscript can be accepted for publication after you have carried out the corrections as suggested by the reviewer(s).

Please submit your revised manuscript by accessing the system.

-

sciencetechnologyasia@gmail.com

Science & Technology Asia

Research Administration Division

Thammasat University (Rangsit Campus)

Khlong Nueng, Khlong Luang, Pathum Thani 12120 Thailand

+66-2564-4440-49 Ext. 1810

PADA LUMBA <padalumba@gmail.com>

29 Mei 2021 pukul 18.12

Kepada: Chatchada Wutthichokdamrong <sciencetechnologyasia@gmail.com>

Dear editor

I have sent my manuscript corrections as suggested by the reviewers long time ago in the system Sir, today I have sent again my manuscript correction in the system, Sir.

I also have sent Copyright Assignment Form Sir.

Thank you before

Yours sincerely

Pada Lumba

[Kutipan teks disembunyikan]