International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 04, 2020
ISSN: 1475-7192

Effectiveness of Iron and Giving Tablets Folic Acid and Hemoglobin Content on the Improvement of Student Learning Outcomes

Eli Rahmawati[1], Ns. Jasmawati[2]

Abstract: *One of the problems faced by Indonesian teenagers are micronutrient nutrition, which is about 12% of boys and 23% of adolescent girls are anemic, mostly due to iron deficiency. Anemia in adolescents adversely affect the decline in immunity, concentration, academic achievement, teen fitness and productivity. In addition, specifically anemia experienced by young women a more serious effect, considering they are the mothers who become pregnant and give birth to a baby, thus increasing the risk of maternal mortality, premature birth and low birth weight (LBW). The provision of iron tablets along with other micronutrients (multiple micronutrients) is more effective in improving iron status, compared to only provide iron supplementation in the form of a single dose. Objective is known effectiveness of iron and acid tablets to Increased levels of hemoglobin and Student Learning Outcomes. Design this study is a Quasi Experimenta pre and post test without control. Place of research in Prodi D-III Midwifery Balikpapan with the number of sample of 33 female students. Analyze data usingPaire frequency distribution and sample t test. Measuring instrument research were: 1) a questionnaire (the characteristics of respondents, age, history of malaria, Final menstrUji pattern Semesteri) Examination Antopometri to measure: IMT 3) laboratory tests measure the levels of worm infestation and HB. The mean value of the variable posttest hemoglobin levels higher than the average pretest. The mean value of the variable learning outcomes posttest lower than the mean value of the pretest.The provision of iron and folic acid tablets are not effective against the increase in Hemoglobin and Outcomes Study on the students level II Prodi D-III Midwifery Balikpapan.*

Keywords: Iron and Folic Acid Tablets, Hemoglobin and Outcomes Study

1. INTRODUCTION

In the cycle of life, adolescence is an age of transition from childhood into adulthood. In this period of rapid physical growth, so it requires adequate nutrition for metabolic function (Yuliati, 2006).One of the problems facing young Indonesian is micronutrient malnutrition, which is about 12% of boys and 23% of adolescent girls are anemic, mostly due to iron deficiency (iron deficiency anemia). Anemia among adolescent girls is higher than boys. Anemia in adolescents adversely affect the decline in immunity, concentration, academic achievement, teen fitness and productivity. In addition, specifically anemia experienced by young women a more serious effect, considering they are the mothers who become pregnant and give birth to a baby, thus increasing the risk of maternal mortality, premature birth and low birth weight. (Kemenkes, 2018). Teenage girls are prone to suffer from anemia due to a lot of blood loss during menstruation. Teenage girls who suffer from anemia are at risk of developing anemia during pregnancy. This will have a negative impact on the growth

[1] Eli Rahmawati. Department of Midwifery Poltekkes Kemenkes East Kalimantan Indonesia
Email: el.rahmahadi@gmail.com
[2] Ns. Jasmawati. Department of Midwifery Poltekkes Kemenkes East Kalimantan Indonesia

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

and development of the fetus in the womb and the potential to cause complications of pregnancy and childbirth, and even cause death of mother and child (Kemenkes, 2016).

The result of Health Research (Riskesdas) in 2013 reported that The proportion of anemia by age 15-24 years is 18.4%. The national rate of anemia was 21.7%, of which 18.4% occurred in males and 23.9% for women.Percentage of anemia at the age of 15-44 years WUS 35.3 percent (Research Ministry of Health, 2013).Mulyawati research results (2003) reported that the prevalence of anemia in women is greater than men. In that study found nearly 60 people out of 72 respondents woman, suffering from anemia with an age range between 15 to 35 years.

Anemia is the most common nutritional problem in the world, mainly due to iron deficiency (WHO 1991, WHO 2001, Sandra et al 2001 in Syriac et al, 2015). The cause of anemia, namely: intake is not adequate, the loss of red blood cells caused by trauma, infection, chronic bleeding, menstrUji End Semesteri, and decreased or abnormal cell formation, such as hemoglobinopathies, thalassemia, hereditary spherocytosis, and a deficiency of glucose 6 phosphate dihidrogenase(Sylvia & Lorraine 2005 in Bieber et al, 2015), The study of risk factors of anemia shows the factors that influence the incidence of anemia among others, education, sex, region, breakfast habits, health status, and the state of the body mass index in the category of thin (Permaesih and Herman, 2005 in Briawan et al, 2009) ,

Young women should consider the needs of iron, because iron needs will be increasing with the growth and the arrival of menarche (Rangen et al, 1997 in Rahmawati 2011). In addition, young women who are anemic body fitness will also be decreased thereby inhibiting achievement and productivity. Other than that adolescence is a period of very rapid growth of iron deficiency in this period mengakibat're not achieving optimal growth (Kemenkes, 2010).

Lack of iron can also cause various effects on teenage girls, among others, lowered immune system, making it susceptible to disease, decrease the activity and learning achievement (Tarwoto 2010 in Rahmawati 2011), found anemia in adolescents can decrease the productivity of work or academic ability at school, because there is no passion to learn and concentrate.

The provision of iron tablets along with other micronutrients (multiple micronutrients) is more effective in improving iron status, compared to only provide iron supplementation in the form of a single dose. Therefore, to increase the absorption of iron in the body, which is given iron supplementation should be combined with other micronutrients, such as vitamin A and vitamin C. Vitamin A plays a role in the transfor and mobilization of iron stores in the body and synthesis of hemoglobin. Other nutrients that affect the prevention Anemia is vitamin C that can help accelerate the absorption of iron in the body and is involved in moving iron into the blood, particularly the mobilization of iron stores of hemosiderin in the spleen (Parakkasi, 1992 in Zarianis, 2006).

One effort that has been done by the government to address the problem of anemia in adolescents is through supplementation with iron tablet form of iron (60 mg FeSO4) and folic acid (0.25 mg). WHO has recommended the consumption of iron tablets for Women of fertile age (WUS) End menstrUji Semesteri is intermittently (1 times / week), with a dose of iron tablet of 60 mg of elemental iron and 2.8 mg of folic acid during the 12-week / 3-month lull three months. Supplementation is given twice a year for three months, so that the total number of tablets given for supplementation is 24 tablets / year (WHO, 2011). Ministry of Health has set doses of iron

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

supplementation on WUS (including teenagers) is 1 tablet / week and when menstrUji End Semesteri administered daily for 10 days with a duration of four months.

Anemia in adolescent girls decreases the concentration of learning that have an impact on learning achievement. High hemoglobin levels can indicate a high intelligence score (Kusmiati, 2013 in Dumilah & Sumarni, 2017). Astiandani study (2015) showed anemia in adolescent girls 1,875-fold risk of obtaining low learning achievement compared to young women who are not anemic. Hasanah study (2015) showed a high severity of anemia adversely affects the biochemistry values obtained by the student. And anemia status associated significantly with the average value of the midterm test and final test of the semester teaching science and Indonesian (Dumilah & Sumarni, 2017).

Students Prodi D-III Midwifery Balikpapan Tk. II with an average age of 16-17 years in which the middle class teenagers. The curriculum covered in one semester is 20 credits with a distribution of 13 credits of theory and practice 7 credits.

Based on the background above, the researchers conducted a study on the effectiveness of the provision of iron and folic acid tablets to increase hemoglobin levels and student results Tk. I Prodi D-III Midwifery Balikpapan, Poltekkes Kemenkes Kaltim.

II. METHODOLOGY

Design this study is a Quasi Experimenta pre and post test without control. Place of research in Prodi D-III Midwifery Balikpapan with the number of sample of 33 female students. Analyze data using Paire frequency distribution and sample t test.Measuring instrument research were: 1) a questionnaire (the characteristics of respondents, age, history of malaria, menstrual pattern), 2) Examination Antopometri to measure: IMT, 3) laboratory tests measure the levels of worm infestation and haemoglobin..

III. RESULT

a. Characteristics of Respondents

This study aims to determine the effectiveness of iron and folic acid tablets to increase hemoglobin levels and student learning outcomes Prodi D III Midwifery Balikpapan with the number of respondents as many as 33 students. Characteristics of respondents include: age, BMI, history of disease and menstrual history in this study, can be seen in table 4.1 below:

Table 4.1. Characteristics of Respondents by Age, menstrual history, Disease history and body mass index (BMI)

No.	characteristics	n	%
1	**Age**		
	18	3	9.1
	19	23	69.7
	20	5	15.1
	21	2	6.1
2	**Body mass index**		
	Obesity (> 25)	3	9.1
	More (23.0-24.9)	7	21.2
	Normal (18.5-22.9)	20	60.6
	Less than (<18.5)	3	9.1
3	**hospital sheet**		

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

	wormy	0	0
	TBC	0	0
	Malaria	0	0
4	**Menstrual History**		
	Menstrual cycle		
	27	2	6.1
	28	21	63.6
	30	4	12.1
	33	2	6.1
	35	4	12.1
	Lama Haid		
	Normal (≤ 7 days)	31	93.9
	Not normal (> 7 days)	2	6.1
	amount	33	100

From table 4.1 above can be seen that the characteristics of respondents by age most are 19 years that is equal to 63.7 percent, or 23 people, and only 2 (6.1%) aged 21 years and 3 (9.1%) aged 18 years and the remaining 5 people (15.1 %) were aged 20 years. The mean value of age was 19.2 years, which means that the average age of respondents was 19.2 years.

Characteristics of body mass index (BMI) on average respondents in this study is 21.5 which is included in the normal category (BMI 18.5-22.9), with the highest BMI of 20 people (60.6%) had a normal BMI, 3 (9.1%) of people who have obesity, 7 (21.2%) had BMI and 3 (9.1) other people are in BMI less.

From the history of disease experienced by respondents 100 respondents did not have a history of intestinal worms, tuberculosis and malaria.

Characteristics of menstrual history consisting of long menstrual cycles and menstruation from table 4.1 above can be seen that all respondents have a normal menstrual cycle that is within the range of 23-35 days with an average of 29.3-day cycle. And most have long menstruation in the normal category (≤ 7 days) days as many as 31 people (93.9%) and the remaining 2 (6.1%) had abnormal menstrual long (> 7 days).

b. Univariate Analysis

a) Data Normality Test Hemoglobin levels pretest and posttest

Before the variable data analysis research conducted prior research data normality test using Shapiro Wilk, Variable data normality test for pretest and posttest Hemoglobin levels are as follows:

Normality Test Data Table 4.2 Hemoglobin pretest posttest

	Shapiro-Wilk		
	statistics	df	Sig.
Pretest_Hb	.941	33	.073
Posttest_Hb	.931	33	.038

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

From table 4.2 above the value of significance (p) the Shapiro-Wilk test was 0.073 (p> 0.05), so that by the Shapiro-Wilk normality test of data pretest levels of hemoglobin (Hb) normal distribution. Hemoglobin levels posttest data significance value (p) was 0.038 (p<0:05), so that by the Shapiro-Wilk normality test of data prosttest hemoglobin (Hb) is not normal.

b) Test Learning Outcomes Data Normality pretest and posttest

Variable data normality test for pretest and posttest learning outcomes are as follows:

Table 4.3 Data Normality Test pretest and posttest learning outcomes

	Shapiro-Wilk			
	statistics	statistics	df	Sig.
IPS_Pretest	.084	.963	33	.322
IPS_Posttest	.157	.891	33	.003

From table 4.3 abovethe value of significance (p) the Shapiro-Wilk test was 0:32 (p> 0.05), so that by Shapiro-Wilk normality test of data pretest Learning Outcomes normal distribution. Data posttest learning outcomes have a significance value (p) was 0.003 (p< 0:05), so that by the Shapiro-Wilk normality test of data Prosttest Learning Outcomes is not normal.

c) Examination of the data analysis univariat Hemoglobin pretest and posttest

The results of the univariate analysis of inspection Hemoglobin levels pretest and posttest by using Central Tendency as follows:

Table 4.4. Univariable Data Analysis Examination Hemoglobin pretest and posttest

		mean	N	Std. deviation	Std. error Mean
pair 1	Pretest_Hb	12.212	33	1.1426	.1989
	Posttest_Hb	12 803	33	.9416	.1639

From table 4.4 Univariate analysis above shows the descriptive value of each variable in the sample pairs. The results of the examination pretest Hemoglobin has an average value (mean) 12:21 33 data. The distribution of data (Std. Deviation) obtained was 1,143 with a standard error 0:19.

Value posttest examination Hemoglobin levels had an average value (mean) 12.80 out of 33 data. The distribution of data (Std.Deviation) gained 0.94 with a standard error 0:16. It shows the average results posttest data value is higher than the results of the pretest value. But the final test data distribution range becomes narrower and the standard errors are also getting smaller.

d) Univariat data analysis Learning Outcomes pretest and posttest

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

Table 4.5. Univariable Data Analysis Learning Outcomes pretest and posttest

		mean	N	Std. deviation	Std. error Mean
pair 1	IPS_Pretest	3.5091	33	.15850	.02759
	IPS_Posttest	3.4845	33	.16675	.02903

From table 4.5Univariate analysis above shows the descriptive value of each variable in the sample pairs. Results pretest value learning outcomes have average values (mean) 3:51 33 data. The distribution of data (Std. Deviation) obtained was 0:16 with a standard error of 0.003.

Results posttest Learning Outcomes value has a value of average (mean) 3:49 33 data. The distribution of data (Std.Deviation) obtained with a standard error 0:17 0:03. It shows the average results posttest data value lower than the results of the pretest value. But the final test data distribution range widened and with a standard error increases.

c. analysis bivariable

Table 4.7 Paired Samples Test

		paired Differences							
					95% Confidence Interval of the Difference				
		mean	Std. deviation	Std. error Mean	Lower	Upper	t	df	Sig. (2-tailed)
pair 1	Pretest_Hb - Posttest_Hb	-.5909	.7392	.1287	-.8530	-.3288	-4592	32	.000

Test analysis of comparative data in Table 4.7 using test samples in pairs, namely pretest and posttest on variable hemoglobin figures show value significance (2-tailed) of 0.000 (P <0.05). So that the initial test results and the final test is a significant change (mean). Based on initial tests of descriptive statistics (pretest) and final test (posttest) proved the higher end of the test. It can be concluded Award iron + folic acid tablets are effective against elevated levels of hemoglobin.

Table 4.8 Paired Samples Test

		paired Differences							
					95% Confidence Interval of the Difference				
		mean	Std. deviation	Std. error Mean	Lower	Upper	t	df	Sig. (2-tailed)
pair 1	IPS_Pretest - IPS_Posttest	.02455	.14597	.02541	-.02721	.07630	.966	32	.341

Test analysis of comparative data in Table 4.8 using test samples in pairs, namely pretest and posttest in variable Learning Outcomes figures show Values of significance (2-tailed) of 0341 (P <0.05). So that the initial

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

test results and test the final changes were not significant (mean). Based on initial tests of descriptive statistics (pretest) and final test (posttest) test proved the smaller end. It can be concluded Award iron + folic acid tablets are not effective against the learning outcome.

IV. DISCUSSION

This study aims to determine the effectiveness of iron + folic acid tablets to increase hemoglobin levels and student learning outcomes at level II Prodi D-III Midwifery Balikpapan Kaltim Poltekkes MoH. Young Women more susceptible to anemiaBased Riskesdas in 2013, it was reported that the incidence of anemia was 23.9% among women.Young women need special attention in terms of health, because at this time is a time of growth and preparation to become a mother. School activities, lectures and various activities of the organization and extra high impact on the pattern of irregular eating, but it is the attitude of a teenager who always consume drinks that inhibit iron absorption will affect the levels of hemoglobin a person (Sumadiyono, 2013 in Meidawati & Purwati, 2017) , The iron requirement in young women increases with the growth and the arrival ofFinal menstrUji Semesteri, Resulting in a very vulnerable young women experience iron deficiency anemia. WHO states that limit the prevalence of anemia in adolescents said weight in a population of more than 15% is a national problem.

The data found in this study of 33 respondents on average have The hemoglobin levels of 12.2 g% before being given iron tablet. And after being given blood + supplementation of folic acid for 12 weeks were taken one tablet in one week led to an average increase in hemoglobin level of 12.8 g%. In accordance with theCircular issued by the Ministry of Health number Hk.03.03 / V / 2016 on tablet supplementation darahpada young women and women of childbearing age with the intent and purpose to improve the nutritional status of young women so that they can break the chain of the occurrence of stunting, prevent anemia and improve backup agent iron in the body as a provision in preparing a healthy generation of qualified and productive. In a circular letter also replaces a circular on the implementation of the provision of the previous blood-added tablets 1 tablet per week and the period given 1 tablet per day for 10 days.

This is consistent with the results of this study that by administering one time per week for 12 weeks can improve hemoglobin level respondents. This is shownof numbersvalue significance (2-tailed) of 0.000 (P <0.05). It can be concluded that the administration of iron + folic acid tablets are effective against elevated levels of hemoglobin. Similarly, research conducted by Susanti, et al (2016) with resultsWeekly iron supplementation has the same effectiveness with weekly and during menstruation in increasing hemoglobin levels in adolescent girls.

Another objective of this study in addition to know the effectiveness of iron tablet + folic acid to increase hemoglobin levels also look at the impact on learning outcomes. The results of the data analysis of the value ofPretest learning outcomes with the average value (mean) 3:51 33 the data, the data distribution (Std. Deviation) 0:16 with a standard error of 0.003. While posttest value learning outcomes have average values (mean) 3:49 33 data. The distribution of data (Std.Deviation) 0:03 0:17 with a standard error. It shows the average results posttest data value lower than the results of the pretest value. Similarly, the test resultsComparative data analysis using paired test samples are pretest and posttest on variable indicates the number of Learning Outcomesvalue significance (2-tailed) of 0341 (P <0.05). So that the initial test results and test the final changes were not significant (mean). It can be concluded Award iron + folic acid tablets are not

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

effective against the learning outcome.

Similar to the study conducted by Tiaranti (2016), which conducts research on the status of anemia and learning achievement at the student / I Islamic senior high schools in Depok with results Spearman correlation test results showed that there were significant negative correlation between status of anemia (Hb) with student achievement This means that the higher the levels of hemoglobin (Hb) example of the learning achievement of the lower instance. According to Sudijono (2012) revealed that the learning outcomes is an act evalUji End Semesteri which may reveal aspects of the process of thinking (cognitive domain) can also reveal other psychological aspects, namely the aspect of values or attitudes (affective domain) and aspects of skills (psychomotor domain) Me- attached to each individual learner. So that is influenced by many factors including internal factors of students (a) physiological students, such as health and physical fitness, as well as the condition of his senses, especially sight and hearing. (B) students' psychological factors, such as interest, talent, intelligence, motivation, and cognitive abilities such as the ability of perception, memory, thinking and knowledge of basic capabilities. Additionally disclosed by Sabri (2010) External factors students as student environmental factors are environmental factors or non-social nature such as the state of temperature, humidity, time of day (morning, noon, afternoon, evening), the location of the school, and so on including social environmental factors such as human and cultural and instrumental factor. Unlike other classes of buildings or physical means, means or tools for learning, instructional media, teachers, and the curriculum or the subject matter and learning strategies play a role in affecting studyr.

V. CONCLUSION

1. Characteristics of respondents by age most are 19 years that is equal to 63.7 percent, body mass index (BMI) on average respondents in this study is 21.5 which is included in the normal category (BMI 18.5-22.9), 100 respondents did not have a history of worm diseases, tuberculosis or malaria. And all respondents have a normal menstrual cycle that is within the range of 23-35 days with an average of 29.3-day cycle.

2. The average value of Hemoglobin posttest higher than the average value of the results of the pretest.

3. The average value of posttest results in variable Learning Outcomes lower than the average value of the results of the pretest

4. The provision of iron and folic acid tablets to increase Hemoglobin effective and ineffective to increase student learning outcomes at level II Prodi D-III Midwifery Balikpapan

VI. RECOMMENDATION

1. Become inputs to the municipality Balikpapan particularly the Health Department Balikpapan that giving iron tablets regularly and under the supervision of one tablet per week for 12 weeks may increase hemoglobin levels significantly so it needs to be a program for young women in order to support the efforts stunting prevention and treatment of iron deficiency anemia.

2. Further studies should be done by adding other variables that influence learning outcomes and other anemia due mainly to the young subjects.

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

REFERENCES

[1] Briawan, et al. 2009. Determinants of success of Iron Supplementation Program on School Students. Journal of Clinical Nutrition Indonesia. Vol. 6. No. 2 November 20019: 78-83. (Accessed 23 April 2019).

[2] Dumilah & Sumarti. 2017. Relationships Genesis Anemia Students Learning Achievement Featured In SMP Bina Insani. Amrita Nutr (2017) 331-340 DOI: 10.2473 / amnt .v1i4. 2017.331-340 (Accessed 1 April 2019)

[3] Hasanah Hanz. Relationships Nutritional Anemia Iron deficiency Substance with Biochemistry Student Learning Outcomes Biological Science Journals Unimed 2014. Healthy and Prosperous Families 2015; 13 (25): 29-36.

[4] Kaimuddin, et al. 2017. Genesis Anemia Screening and Determinants in Young Women SMAN 3 Kendari Year 2017. Student Scientific Journal of Public Health Vol. 2/6 / May 2017 (accessed

[5] Kemenkes. 2013. Principles Indonesia Riskesdas 2013. Ministry of Health. Agency for Health Care Research & Development. www. Libang.depkes.go.id (accesed 1 April 2019)

[6] Kemenkes.2014 Ministry of Health Regulation No. 88 Year 2014 About the Tablet sandart added darahbagi Eligible Women & Maternity

[7] Kemenkes. 2016. Guidelines for the Prevention and control of anemia in adolescents and Women of fertile age. Nutrition Drektorat masyarat Directorate General for Public Health Ministry of Health.

[8] Kepmenkes No. 2016 HK.03.03 / V / 0595/2016 on the Granting of Tablet added darahpada Young Women and Women of fertile age (accessed March 6, 2019).

[9] Lester, et al. 2015. Relations with Genesis Consumption Iron Anemia in Students of SMP Negeri 27 Padang. Andalas Medical Journal. 2017; 6 (3) (accessed 1 April 2019).

[10] Merryana. 2012. Introduction to Nutrition Society. Kencana Jakarta in Kaimudin et al. 2017. Genesis Anemia Screening and Determinants in Young Women Kendari 2017. SMAN 3 Jimkesmas Vol 2/6 / May 2017 (accessed March 4, 2019).

[11] East Kalimantan Health Polytechnic BPPSDM MoH. 2017. Academic Guide.

[12] Rahmawati Kristanti Dwi. 2011. Analysis factor Cause Nutritional Anemia Iron incident on Young Women in SMAN 2 Bandar Lampung in 2011. Thesis, University of Indonesia.

[13] Suryani, et al. 2015. Analysis of Dietary and Nutritional Anemia Iron in Young Women Bengkulu City. Thesis. Journal of Public Health Andalas

[14] WHO. 2001. Iron Deficiency Anemia Assessment, Prevention, and Control A guide for program managers. WHO / NHD / 01.3 (accessed 1 April 2019).

[15] WHO. 2011. Guidelines: Iron and Folic Acid intermittent in menstruating Women Suplementation. WHO Library Cataloging-in-Publication Data (accessed 23 April 2019).

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020

[16] Yuliati. 2006. Nutrition Problems in Young Women. Results of Bio-Psychosocial Studies Student Records Jurdik Biological Science Diet UNY (presented at the National Seminar of Mathematics and Natural Sciences 2006).

[17] Zarianis. 2006. Effects of Iron-Supplementation of Vitamin C and Vitamin C to Hemoglobin Anemia Primary School Children in Sub Sayung Demak. Thesis. Diponegoro University Graduate Program.

[18] Zamirian, M., Sarmadi, T., Aghasadeghi, K., Kazemi, M.B.S.Liver cirrhosis prevents atrial fibrillation: A reality or just an illusion(2012) Journal of Cardiovascular Disease Research, 3 (2), pp. 109-112.

[19] Ibraheem, Hiba, Yasmeen Al-Majedy, and Ahmed Al-Amiery. "4-Thiadiazole: The Biological Activities." Systematic Reviews in Pharmacy 9.1 (2018), 36-40. Print. doi:10.5530/srp.2018.1.7

[20] Aruna, K.B., LallithaShri, A., Aravindh, J., Jayasurya Protection for Multi Owner Data Sharing Scheme(2017) Bonfring International Journal of Advances in Image Processing, 7 (1), pp. 01-05.

[21] Tressoldi, P.E., Storm, L., Radin, D.Extrasensory perception and quantum models of cognition(2010) NeuroQuantology, 8 (4 SUPPL. 1), pp. S81-87

[22] M. Thiyagaraj, G. Suseendran " Enhanced Prediction of Heart Disease Using Particle Swarm Optimization and Rough Sets with Transductive Support Vector Machines Classifier" , Advances in Intelligent Systems and Computing, Data Management, Analytics and Innovation, Vol.2, Sep.2019,Pages 141-152

[23] S. Jawad Hussain, Usman Ahmed, H. Waqas, S. Mir, NZ. Jhanjhi, and M. Humayun, "IMIAD: Intelligent Malware Identification for Android Platform," IEEE 2019 International Conference on Computer and Information Sciences (ICCIS), Al Jouf, Saudi Arabia, 2019

DOI: 10.37200/IJPR/V24I4/PR201654
Received: 22 Jan 2020 | Revised: 24 Feb 2020 | Accepted: 28 Feb 2020