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RESEARCH ARTICLES

Analisis Karakteristik Ibu, Pengetahuan, Persepsi dengan Kelengkapan Imunisasi Dasar: Studi Cross-Sectional

Analysis of Maternal Characteristics, Knowledge, and Perceptions Regarding Basic Immunization Completeness: A Cross-Sectional Study

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Abstract

Complete basic immunization is a government program aimed at protecting infants and children from preventable diseases. However, several factors cause mothers not to complete their children's immunizations. This study aimed to analyze the completeness of basic immunization based on maternal characteristics, knowledge, and perception. A quantitative cross-sectional study was conducted at the Simpang Empat Health Center, West Pasaman, from November 2023 to January 2024, involving 115 subjects. Results showed significant relationships between maternal education (p-value=0,004), employment status (p-value=0,036), religion (p-value=0,000), birth weight (p-value=0,000), and knowledge (p-value=0,044) with immunization completeness. No significant associations were found for birth order, number of children, family size, or perception. Religion also influenced immunization behavior. Strengthening family-based health promotion through KIA books, educational videos, and digital reminder applications is recommended.

Keywords: *birth weight, children, immunization, education, employment*

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Abstrak

Imunisasi dasar lengkap merupakan program pemerintah yang bertujuan melindungi bayi dan anak dari penyakit yang dapat dicegah. Namun, masih terdapat berbagai faktor yang menyebabkan ibu tidak melengkapi imunisasi anaknya. Penelitian ini bertujuan untuk menganalisis kelengkapan imunisasi dasar berdasarkan karakteristik, pengetahuan, dan persepsi ibu. Penelitian ini menggunakan desain kuantitatif dengan pendekatan *cross-sectional* yang dilaksanakan di Puskesmas Simpang Empat, Kabupaten Pasaman Barat, pada November 2023 hingga Januari 2024, dengan jumlah responden sebanyak 115 orang. Hasil penelitian menunjukkan adanya hubungan yang signifikan antara tingkat pendidikan ibu (*p-value*=0,004), status pekerjaan (*p-value*=0,036), agama (*p-value*=0,000), berat badan lahir anak (*p-value*=0,000), dan pengetahuan (*p-value*=0,044) dengan kelengkapan imunisasi dasar. Tidak terdapat hubungan yang signifikan antara urutan kelahiran, jumlah anak, jumlah anggota keluarga, dan persepsi ibu. Faktor agama juga berpengaruh terhadap perilaku imunisasi. Disarankan agar promosi kesehatan berbasis keluarga diperkuat melalui pemanfaatan buku KIA, video edukasi, serta aplikasi pengingat imunisasi digital.

Kata Kunci: *berat lahir, anak, imunisasi, pendidikan, pekerjaan*

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Highlight:

- Maternal education, employment status, religion, child's birth weight, and maternal knowledge significantly affect basic immunization completeness ($p < 0,05$).
- Religious beliefs significantly influence immunization behavior; faith-based and cultural approaches are needed to improve coverage.
- Strengthen family-based health promotion through KIA books, educational videos, and digital reminders, involving community and religious leaders; further qualitative research is suggested.

INTRODUCTION

A government program called Complete Basic Immunization (CBI) makes it easier for all newborns and kids to receive routine vaccinations. There are two phases to this vaccination: the basic stage and the booster stage. In order to maintain maximum immunity levels, booster vaccinations are administered at the age of nine months, whereas basic vaccinations begin as soon as the baby is born (Sriatmi et al., 2018; Kemenkes, 2018). The following is the whole basic immunization schedule according to the child's age: Age < 24 hours: HB-0, Hepatitis B Age 1 month: Polio 1 and BCG DPT-HB-Hib 1, Polio 2, and PCV1 at 2 months of age DPT-HB-Hib 2, Polio 3, and PCV2 at 3 months of age DPT-HB-Hib 3, Polio 4, and IPV (injected polio) at 4 months of age Measles or MR at age 9 months; PCV3 at age 12 months. Booster shots are administered in the interim at: Grade 1 SD/MI: DT and Measles/MR; Grade 2 and 5 SD/MI: Td; Age 18 months: DPT-HB-Hib and Measles/MR Although this program has been implemented nationally, immunization coverage is still uneven. Based on WHO data (2023), the number of children who have

not received any immunization (zero-dose children) globally decreased from 18.1 million in 2021 to 14.3 million in 2022. The coverage of DPT3 immunization increased from 81% to 84%, and the coverage of the first dose of measles immunization rose from 81% to 83%, but it has not yet reached the pre-pandemic level of 86% in 2019 (WHO, 2023).

In Indonesia, there are still children who have not received complete basic immunization or have not been immunized at all since birth. Data from the Directorate of Disease Prevention and Control of the Ministry of Health recorded that in the period 2014–2016, around 1.7 million children had not received immunization or their immunization status was incomplete (Kemenkes, 2018). Therefore, the government has changed the concept of basic immunization to complete basic immunization, which includes basic and advanced immunizations adjusted to the child's age. Nationally, the coverage of complete basic immunization still faces challenges. In West Sumatra Province, the achievement of complete basic immunization (IDL) in 2021 was 82.47%, not yet reaching the national target but showing an increase compared to 2020, which was only 56.7%. Only one district/city out of the total 18 districts/cities in West Sumatra achieved the 80% target in 2021, the same as the achievement in 2020 (Dinkes, 2022). In Pasaman Barat Regency, the coverage of infant immunization in 2021 based on the type of immunization is as follows: HB0 < 24 hours (94.9%), HB0 aged 1–7 days (80.1%), BCG (88.2%), DPT-HB-Hib (59.8%), Polio (57.8%), Measles/MR (54.6%). Compared to 2020, there was an increase in coverage for HB0 < 24 hours, BCG, and DPT-HB-Hib. However, the complete basic immunization coverage in Pasaman Barat Regency in 2021 was only 51.0%, a slight increase from 49.0% in 2020, and still far below the national target of 94.9% in 2022.

One of the important factors influencing the success of immunization programs is parental perception, especially that of mothers. A positive perception will increase the likelihood of parents completing their child's immunization, while incorrect perceptions, such as fear of side effects or misconceptions about immunization, can hinder the process. Strong and deep perceptions will encourage more consistent behavior compared to behavior that arises solely from coercion (Wahyuni and Hadi, 2022). Research by Dillyana (2019) shows a relationship between maternal knowledge, attitudes, and perceptions with the basic immunization status of children in RW 8, Wonokusumo Village. The results of this study reinforce the importance of targeted education to shape a positive perception of immunization (Dillyana, 2019). People who have vulnerability, seriousness, and motivation to act in line with benefits, barriers, and good self-efficacy will be more likely to engage in disease prevention by receiving vaccinations according to government recommendations (Kusumaningtyas and Hanifarizani, 2024).

A preliminary study in the working area of Puskesmas Simpang Empat, Pasaman, showed that out of 20 interviewed parents, half did not bring their babies for immunization due to limited understanding. Observations also indicated that many infants remained unimmunized, mainly because of a lack of knowledge about the benefits, schedule, and completeness of immunization, as well as parental perceptions. According to the Health Belief Model (HBM), health behavior is influenced by perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy. In the context of immunization, these perceptions affect parents' decisions regarding their child's immunization. This study aims to analyze the relationship between maternal characteristics (age, education, occupation, religion), number of children, knowledge, and perception with the completeness of basic immunization in children in the Simpang

Empat Health Center area. The findings are expected to serve as a basis for developing community-based education programs and strengthening the role of *posyandu* cadres in improving maternal awareness about immunization.

METHODS

This research is a quantitative research with a cross-sectional design, This research was carried out at the Simpang Empat West Pasaman Health Center Sumatera Barat in November 2023-January 2024. Sample of 115 Subjects. The sampling technique is probability sampling. The inclusion criteria of this study are: Mothers who have children aged 10 months-23 months, Parents who understand Indonesian, Willing to be subjects and Bring KIA books. The exclusion criteria of this study are: Mothers who have children under 10 months and over 23 months, Outside the area of the Simpang Empat Health Center, Do not have KIA books, Children are sick, Mothers who have babies with immune deficiency, Mothers who have babies with HIV infection, Mothers who have babies with extensive skin infections, Mothers who have babies with immunosuppressant therapy and hemodialysis.

The questionnaire, which is intended to assess parents' perceptions or views, contains 15 questions, using the Likert scale where numbers 1-5 contain positive questions and numbers 6-15 contain negative questions. This questionnaire has been tested for Validity and Reliability Cronbach's Alpha 0,613 by (Hemadiyan, 2017). The knowledge questionnaire used is a closed questionnaire consisting of 20 questions (Susanti, 2019). Good knowledge is when the subjects' answers score > 50% of the mean. Poor knowledge is when the subjects' answers score ≤ 50% of the mean. Parental perception is the assessment, opinion, or viewpoint of parents (Mother/Father) regarding basic immunization for their baby. Negatif < mean, Positif > mean. The statistical test uses *Chi-square* with a degree of significance or a level of significance $\alpha < 0.05$. Ethical Approval of the Health Research Ethics Commission, Faculty of Nursing and Midwifery, Binawan University No. 028A/PE/FKK-KEPK/VIII/2023.

RESULTS AND DISCUSSIONS

Based on Table 1, The most Mother education is low, 71,3%; the most Work is Not working, 82,6%. Islam is the most religious, 99,1%. The highest number of children is 2 people, which is 76,5%. The most common birth order is 1-2 (73,9%). Paritas is the smallest (≤ 4) as many as 77,4%, and the most common birth weight is no risk (93,9%). The Most Knowledge Good 62,6%.

Tabel 1. Distribusi karakteristik (n=115)

Variable	n	%
Mother's education		
Low	82	71,3
Tall	33	28,7
Work		
Not working	95	82,6
Work	20	17,4
Religion		
Islam	114	99,1
Kristen	1	0,9
Number of children		

Variable	n	%
≤ 2 of ≤	88	76,5
>2	27	23,5
Birth order		
1-2	85	73,9
3 or more	30	26,1
Paritas		
Little ≤ 4	88	77,4
Many > 4	26	22,6
Birth Weight		
Risk	7	6,1
No Risk	108	93,9
Knowledge		
Less	43	37,4
Good	72	62,6

Source: Primary data, 2024

Based on Table 2, there is a significant relationship between maternal education (p=0,004), employment status (p=0,036), religion (p=0,000), birth weight (p=0,000), and knowledge (p=0,044) with the completeness of basic immunization. Conversely, no significant relationship was found between birth order (p=0,594), number of children (p=0,113), number of family members (p=0,594), and maternal perception (p=0,157) with the completeness of basic immunization.

Table 2. Relationship of characteristics, knowledge, and perception of mothers to complete basic immunization

Variables	Complete basic immunization				*p-value*
	Incomplete		Complete		
	n	%	n	%	
Maternal Education					
Low	79	71,8	3	60	0,004*
Tall	31	28,2	2	40	
Work					
Not Working	93	84,5	2	40	0,036*
Work	17	15,5	3	60	
Religion					
Islam	109	99,1	5	100	0,000*
Kristen	1	0,9	0	0	
Number of children					
≤ 2 of ≤	85	77,3	3	40	0,113
>2	25	22,7	2	60	
Birth Order					
1-2	84	76,4	3	60	0,594
3 or more	26	23,6	2	40	
Number of family members	84	76,4	3	60	0,594
Little ≤ 4	26	23,6	2	40	
Many > 4					
Birth Weight	7	6,4	0	0	0,000*
Risk	103	93,6	5	100	
Normal					
Mother's Perception	42	38,2	0	0	0,157

Variables	Complete basic immunization				*p-value*
	Incomplete		Complete		
	n	%	n	%	
Negative	68	61,8	5	100	
Positive					
Knowledge	39	35,5	4	80	0,044*
Less	71	64,5	1	20	
Good					

Note:*Chi-square, significant if the p-value < 0.05.

The relationship between maternal education and complete basic immunization.

The results of the study showed a significant relationship between maternal education and complete basic immunization**.** This is consistent with the findings of Lukusa et al. (2018), whose systematic review demonstrated that caregiver or maternal education significantly increases child vaccination coverage in South Asian countries, including India, Nepal, and Pakistan. Furthermore, a meta-analysis by Gebreyesus and Tesfay (2024) in Ethiopia reported that children of mothers with primary education were 1.87 times more likely, and those with secondary education or above were 3.47 times more likely, to complete basic immunization compared to children of mothers with no education

Maternal educational attainment has an impact on employment status, which means that occupational factors cannot fully explain infant immunization to be complete (Hudhah and Hidajah, 2017). Mother's compliance to vaccinate with mothers Higher education will increase their knowledge and information, which will help them immunize their babies, and vice versa. Low-educated mothers are less likely to receive knowledge about vaccinations, which makes it more likely that they will not give the entire recommended vaccination to their children (Dinengsih and Hendriyani, 2018). According to the researcher, subjects with low education levels tend to be more aware of the importance of complete basic immunization. They may better understand the benefits of immunization, the risk of disease that can be prevented with immunization, and the recommended immunization schedule.

Occupational relationship with complete basic immunization

The results of the study showed a relationship between maternal work and the administration of complete basic immunization. This research is in line with research in Buddagan Village, Pademawu, Pamekasan. There is a relationship between maternal work and the success of basic immunization in infants aged 0-11 months (Octaviana and KW, 2022). According to researchers, the average mother does not work so that the time to do complete basic immunization is there, besides that mothers have a good level of awareness and good knowledge about the importance of complete basic immunization.

Relationship of Religion to complete basic immunization

The significant relationship between religion and the completeness of immunization also deserves attention. Some literature mentions that religious values can influence perceptions of immunization, both positively and negatively, depending on the understanding and influence of religious leaders (Nurmalasari et al., 2018). Therefore, a culture- and religion-based approach is very important in public health interventions. According to research at Puskesmas I Kembaran, there was a positive relationship with a coeficient correlation value of 0,469, which means that there is a moderate strength

between Islamic religious beliefs and the acceptance of the Measles Rubella vaccine in the working area of Puskesmas 1 Kembaran. According to religious researchers, subjects have a similar view of the use of vaccines, which are beneficial to their child's health.

Similar findings were reported in the study of Basharat and Shaikh (2017), which claimed that public trust is a significant socio-cultural influence, especially on regaining public trust through religion is one of the most effective ways to address the underlying causes of people's doubts; This will give rise to strong feelings, which will increase for immunization (Basharat and Shaikh, 2017).

Relationship Number of children with complete basic immunization

The results of the study showed a relationship between the number of children and complete basic immunization. This study is in accordance with Syafriyanti and Achadi (2022), using secondary data from the 2017 Indonesian Health Demographic Survey (SDKI) "mothers with ≤ 2 children have a 1.1 times higher chance of completing basic immunizations for their children than mothers with >2 children" (Syafriyanti and Achadi, 2022). According to researchers, families with more children may face challenges in dividing attention and resources to ensure all children receive full immunizations. Large families may have limited time, money, and access to health facilities, which can affect the provision of basic immunizations.

Relationship Birth sequence with complete basic immunization

Results There was no relationship between birth order and complete basic immunization. In accordance with the 2017 SDKI data study, the order of birth of children has a relationship with basic immunization in rural areas (Syahfitri et al., 2024). According to researchers, mothers have a high commitment to their children's health, they tend to ensure that all children are fully immunized, regardless of birth order.

Relationship Number of family members with complete basic immunization

The results of the study did not correlate the number of family members with immunization. According to researchers, mothers who have toddlers in the West Pasaman region have good knowledge and awareness about the benefits and importance of immunization, so that it is more decisive than the number of family members.

Relationship of Birth Weight with complete basic immunization

The results of the study showed a relationship between Birth Weight and complete basic immunization. According to researchers, mothers who have babies with birth weight are at risk of experiencing delays in receiving complete basic immunizations. This can be due to more fragile health conditions or medical complications that require more attention before administering the vaccine.

Relationship of Perception with complete basic immunization

The results of the Perception study had no relationship with complete basic immunization. This study is in accordance with mothers who have children aged 10-24 months in the working area of the Kuta Baro Health Center, in 10 villages totaling 209 people, there is a relationship of perception about basic immunization (Rahmawati and Sufriani, 2020).

When a person rejects something and feels that it does not fit their personality,

they are said to have a negative perspective. External and internal variables can affect a person's perspective. Internal elements include emotions, goals, hopes, attitudes, and one's own personality as well as prejudices, learning processes, physical conditions, requirements, and hobbies. Meanwhile, external elements include knowledge, information, requirements, family history, size, intensity, and newly acquired new objects. A mother in RW 8 Wonokusumo Village claims that socio-cultural norms or beliefs still make vaccination useless. In addition, mothers continue to have false beliefs about adverse reactions to vaccination (Dillyana, 2019).

From the findings obtained by the researcher and the results of previous researchers, the researcher assumes that mothers lack understanding of immunization to provide information to the community about the importance of basic immunization in children, and modify health promotion programs such as counseling in each village regarding subjects' doubts about immunization materials, about the importance of basic immunization, diseases that can be caused without immunization.

Relationship of Knowledge with complete basic immunization

The results of the study show that there is a relationship between knowledge and complete basic immunization. In accordance with research in Wonokusumo Village, Semampir District, Surabaya City, there is a meaningful relationship between maternal knowledge about immunization and immunization compliance (Yuda and Nurmala, 2018). According to researchers, sufficient knowledge can reduce mothers' fears and worries about the side effects of immunization, so they are more willing to bring their children to get immunized.

Improving health promotion is one strategy to increase maternal knowledge because their behavior will be shaped by their understanding. Mothers will usually behave well when they have strong information about the mother's health because good behavior and mother's knowledge are correlated. In addition to Factors such as knowledge, attitudes, age, education, occupation, trust, proximity and services of health facilities, the role of health workers, the number of children, behavior, family support, and economic status can all have an impact on the ability of mothers to provide their babies with all the basic immunizations recommended in Indonesia (Kartika et al., 2023).

CONCLUSIONS

There is a significant relationship between maternal education, employment status, religion, birth weight of the child, and maternal knowledge with the completeness of basic immunization. Mothers with higher education, not working, possessing good knowledge, and children with normal birth weight are more likely to complete basic immunization. It is recommended that the Puskesmas strengthen family-based health promotion policies by expanding the use of communication media such as the KIA Book, educational videos, and SMS or digital application-based immunization reminders. Education should also involve religious and community leaders to address perception- and belief-based barriers. Further research is recommended to use a qualitative approach to explore in-depth the motivations, barriers, and subjective perceptions of mothers towards complete basic immunization. This is important to understand the psychosocial factors, cultural beliefs, or social environmental influences that are not accessible through a quantitative approach.

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CONFLICT OF INTEREST

This research does not have a conflict of interest

REFERENCES

Basharat, S., Shaikh, B.T., 2017. Polio Immunization in Pakistan: Ethical Issues and Challenges. Public Health Reviews 38(6), 1-6. https://doi.org/10.1186/s40985-017-0049-4

Dillyana, T.A., 2019. Hubungan Pengetahuan, Sikap dan Persepsi Ibu dengan Status Imunisasi Dasar di Wonokusumo. Journal of Health Promotion and Health Education 7(1), 67–77. https://doi.org/10.20473/jpk.v7.i1.2019.67-77.

[Dinkes] Dinas Kesehatan., 2022. Profil Kesehatan Sumatera Barat. Dinas Kesehatan Provinsi Sumatera Barat.

Dinengsih, S., Hendriyani H., 2018. Hubungan antara Pendidikan, Pengetahuan, Dukungan Keluarga, dan Peran Tenaga Kesehatan dengan Kepatuhan Ibu dalam Melakukan imunisasi Dasar pada Bayi Usia 0-12 Bulan di Desa Aweh Kabupaten Lebak Provinsi Banten. Jurnal Kesehatan Kusuma Husada 9(2), 202-212. https://jurnal.ukh.ac.id/index.php/JK/article/view/281

Hemadiyan, N.J., 2017. Hubungan Persepsi Orang Tua dengan Kelengkapan Imunisasi Dasar pada Bayi Usia 9-12 Bulan. Jurnal Bidan Komunitas 5(2), 1-130.

Hudhah, M.H., Hidajah, A.C., 2017. Perilaku Ibu dalam Imunisasi Dasar Lengkap di Puskesmas Gayam Kabupaten Sumenep. The Indonesian Journal of Health Promotion and Health Education 5(2), 167-180. https://doi.org/10.20473/jpk.v5.i2.2017.167-180.

Kartika, A.P.D., Adi, S., Ratih, S.P., Gayatri, R.W., 2023. Pengaruh Pengetahuan dan Sikap terhadap Perilaku Ibu dalam Pemberian Imunisasi Dasar Lengkap pada Bayi di Indonesia: Literature Review. Sport Science and Health 5(4), 353-363. https://doi.org/10.17977/um062v5i42023p353-363.

[Kemenkes] Kementerian Kesehatan., 2018. Berikan Anak Imunisasi Rutin Lengkap,. Kementerian Kesehatan Republik Indonesia.

Kusumaningtyas, D., Hanifarizani, R.D., 2024. Persepsi Orang Tua dan Pengasuh terhadap Pemberian Imunisasi Rutin pada Balita Pasca Pandemi Covid-19. Jurnal Ilmiah Kebidanan 11(2), 107-121. https://doi.org/10.35316/oksitosin.v11i2.4519.

Nurmalasari, N., Febriana, I.K., Ahmad, Z., Nida, S., 2018. Intervensi Kesehatan Berbasis Sosial-Budaya. Center for Indonesia's Strategic Development Initiatives, Jakarta.

Octaviana, L.P., KW DN. 2022. Hubungan Tingkat Pendidikan dan Status Pekerjaan ibu dengan Keberhasilan Imunisasi Dasar pada usia 0-11 Bulan di Desa Buddagan Pademawu Pamekasan. Jurnal Ilmiah Obsgin, 14(1): 2–6.

Rahmawati, F., Sufriani. 2020. Persepsi dan Perilaku Ibu tentang Imunisasi Dasar pada

Anak di Aceh Besar. Idea Nursing Journal 11(2), 50-55. DOI: 10.34305/JHRS.V1I02.372

Sriatmi, A., Martini, M., Patriajati, S., Dewanti, N.A.Y., Budiyanti, R.T., Nandini, N., 2018. Mengenal Imunisasi Rutin Lengkap. FKM Undip Press, Semarang.

Susanti, E., 2019. Hubungan Pengetahuan dan Sikap Ibu dengan Kelengkapan Imunisasi Dasar di Wilayah Kerja Puskesmas Temindung Tahun 2019. [Skripsi]. Poltekkes Kemenkes Kalimantan Timur.

Syafriyanti, W., Achadi, A., 2022. Determinan Imunisasi Dasar Lengkap pada Anak Usia 12-23 Bulan di Indonesia. Jurnal Ilmu Kesehatan 6(2), 370-379. https://doi.org/10.33757/jik.v6i2.609

Syahfitri, R.I., Ismah, Z., Susanti N., 2024. Determinan Imunisasi Dasar pada Balita di Indonesia: Studi Pedesaan. Media Penelitian dan Pengembangan Kesehatan 34(1), 102-117. https://jurnal.polkesban.ac.id/index.php/jmp2k/article/view/1987

Trivedi, D., 2014. Cochrane review summary: Face-to-face interventions for informing or educating parents about early childhood vaccination. Primary health care research & development, 15(4): 339–341. https://doi.org/10.1017/S1463423614000322.

Lukusa, L. A., & kolega. (2018). A systematic review and meta-analysis: caregiver education and increases in childhood vaccination coverage.

Gebreyesus, A., & Tesfay, K. (2024). Effect of maternal education on completing childhood vaccination in Ethiopia: systematic review and meta-analysis. Scientific Reports, 14, 17453.

Wahyuni, R.D., Hadi, E.N., 2022. Persepsi Orang Tua Bayi terhadap Pemberian Imunisasi Dasar selama Pandemi Covid-19 di Jakarta dan Bekasi. Jurnal Kedokteran dan Kesehatan 18(1), 41-56. https://doi.org/10.24853/jkk.18.1.41-56

[WHO] World Health Organization., 2023. Immunization coverage [www Document]. [Diakses Maret 2025].

Yuda, A.D., Nurmala, I., 2018. Hubungan Karakteristik Ibu, Pengetahuan Ibu, Sikap Ibu, dan Tindakan Ibu dengan Kepatuhan Imunisasi. Jurnal Berkala Epidemiologi 6(1), 86-94. https://doi.org/10.20473/jbe.v6i12018.86-94.