Pitungan and birth variations of first-born among Javanese ethnic population in Indonesia

Pitungan dan variasi kelahiran anak pertama pada etnis Jawa di Indonesia

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Abstract

There is a phenomenon among the Javanese ethnic population, in which many wedding ceremonies are held whenever the Javanese calendar points to particular months such as *Besar*, *Rejeb*, and *Ruwah*, because marrying in those months is believed to bring good fortune. This study aimed to analyze the influence of wedding date determination through *pitungan* and feeling safe on birth variations of first-born and the number of children the wife gives birth to. The research was conducted in Blitar City, Blitar Regency, and Surabaya City with 193 married couples. Linear Regression and Chi-square were the statistical tests used in this research. Chi-square and Linear Regression tests proved that *pitungan* affects the birth variations of first-born ($p = 0.004$; $p = 0.004$) and the number of children a couple has ($p = 0.007$; $p = 0.002$). Both Chi-square and Linear Regression proved that feeling safe (*roso slamet*) does not have any significant effect on birth variations of first-born ($p = 0.162$; $p = 0.767$) and the number of children in household ($p = 0.863$; $p = 0.680$). The conclusion is that there is an important relationship between *pitungan* and birth variation in which the more *pitungan* is done, the sooner first-born is given birth to and the more children a married couple has.

Keywords: birth variations of first-born; feeling safe; *pitungan*; *primbon*

Abstrak

Ada fenomena di masyarakat, terutama etnis Jawa, di mana perkawinan sering kali diselenggarakan setiap memasuki bulan-bulan Jawa seperti bulan Besar, Rejeb, dan Ruwah, karena dianggap sebagai bulan "baik". Tujuan penelitian ini adalah untuk menganalisis adanya pengaruh perhitungan perjodohan dan perasaan aman terhadap variasi kelahiran anak pertama dan jumlah anak yang dilahirkan pada etnis Jawa. Penelitian ini dilakukan di Kota Blitar, Kabupaten Blitar, dan Kota Surabaya dengan jumlah 193 pasangan suami istri. Uji statistik yang digunakan adalah Regresi Linear dan Chi-square. Berdasarkan uji statistik Chi-square dan Regresi Linear, terbukti bahwa ada pengaruh variabel pitungan terhadap variabel variasi musim kelahiran anak pertama (p = 0,004; p = 0,004)) dan jumlah anak yang dilahirkan (p = 0,007; p = 0,002). Uji statistik Chi-square dan uji Regresi Linear menjelaskan bahwa tidak ada pengaruh yang signifikan antara variabel perasaan aman (roso slamet) terhadap variasi kelahiran anak pertama (p = 0,162; p = 0,767) dan jumlah anak yang dilahirkan (p = 0,862; p = 0,680). Simpulan penelitian menunjukkan adanya pengaruh pitungan dan variasi kelahiran anak pertama, di mana semakin tinggi pitungan dilakukan untuk menentukan waktu perkawinan, maka semakin cepat variasi kelahiran anak pertama dan jumlah anak yang dilahirkan lebih banyak.

Kata kunci: variasi kelahiran anak pertama; perasaan aman; pitungan; primbon

Introduction

In Indonesia, based on the National Socio-economic Survey Indonesia data, the maternal mortality rate in 2015 was fairly high at 305 per 100,000 populations and the infant mortality rate in 2017 was 24 per 1,000 live births (Purnamasari 2021). These data made this research essential to be conducted. Accordingly, the government, especially hospitals, health centers, medical personnel, and married couples can be well-prepared. Besides, adequate health facilities could be more prepared in the peak season of births in certain months that consequently lead to the reduction of the maternal mortality rate

and childbirth in Indonesia. Along with this, pre-marriage counseling guidance will place more concerns on the importance of being physically healthy.

Javanese people enter the month of *Jumadilakir*, *Besar*, and *Ruwah* when a lot of celebrations or parties are held, especially weddings. These months are believed to be "good" months for having a marriage. The months are considered "good" because those months are "mating season" for the Javanese. According to Emlen (1984), the causes of environmental changes in population dynamics are: 1) the environment is never constant, it always changes, 2) food supplies always vary, as a result of environmental changes, and 3) the climate changes as a result of environmental changes, in which there are different individual migrations and emigrations.

Changes in reproductive ability in populations are often influenced by the internal and external environment, particularly nutrition, disease, temperature, altitude of residence, occupation, and culture (Rosetta 2007). Research was conducted by Bailey (2008) in Ituri Forest, Zaire, which is inhabited by the Lese villagers and Efe (Pygmies). Lese farmers live in the Ituri Forest, Zaire, as subsistence farmers and the Efe (Pygmies) are breeders. Bailey proves that in the population of subsistence farmers (Lese), there is a significant correlation between the birth season and a decrease in the rate of conception when food stock is limited. Limited food makes the nutritional status of the Lese woman population low so that ovarian function decreases, which is reduced as measured by steroid levels in saliva. Meanwhile, the Efe (Pygmies) is breeders who also live in the same geographic area, but they are less dependent on plant cultivation and their way of life is more flexible, therefore the research results prove that there is no significant connection between the season of birth and the frequency of conception.

Previous studies have found that seasonal variation in birth is related to climate variables, through the rainfall chain which results in food production. Food production is maintaining the balance of energy that influences ovarian function. Therefore, there are variations in human birth. This ecological approach has very complex applications as it is involved food production, energy balance, economy, and culture (Bailey 2008). Fialova in Bobak (2001) pointed out that cultural factors play a role in birth seasonality. For example, the birth month affects the number of conceptions of women, resulting in changes in the birth rate. Usually, this occurs in populations that are still traditional (Bobak 2001). In modern populations, the occurrence of conception generally depends on the choice of time to get pregnant (due to contraceptive use) rather than on climate or length of the marriage.

Henneberg (1977) conducted research in Poland based on birth records from the 19th century. He concluded that birth rhythms are a phenomenon caused by a culture that has no relationship with human biological traits or a direct relationship to climatic conditions. Factors that affect the birth rhythm are technological and organizational factors, including factors related to the agricultural working season, community habits, and customs. Besides being influenced by the physical environment, biological processes and genetic factors also affect human behavior. According to the theory of Evolutionary Psychology introduced by David M. Buss, the choice of behavior, emotional reaction, and attitude to some extent are influenced by the human biological trait (Baron 2004).

Differences in conceptions are also caused by differences in socio-cultural factors. This difference is often caused by differences in the events of religious celebrations or in some aspects of the religious calendar (Rajan 2000). This determines the occurrence of differences in conception patterns, especially in developing societies, which consequently results in different variations in births. The substance of other socio-cultural factors is the cycle of activity seasons and their interactions will forcibly shape the annual activity. For example, in the agricultural population, they will do a cluster of mating before or after the main season of agricultural activities (Danubio 2001).

The results of the research explained above show that, in general, culture and religious celebrations tend to be used as coordination between the calendar of activities and subsistence activities (for agricultural communities). This is the reason that subsistence (agriculture) societies form a culture of conception

patterns as a result of ecological boundaries. The formation of a conception pattern will produce a definite birth season in the subsistence population based on each region (Condon 1982).

The results of research conducted by Johnson et al. (1975) proved that social influences and cultural events had an impact on the number of births in Peninsular Malaysia (1964-1969). The number of births increases in January due to the "Marriage Boom" occurring after the month of Ramadan (the month of fasting) because, during Ramadan, people in Peninsular Malaysia believe that there are religious sanctions for marrying. Meanwhile, the peak of births for people living in non-Muslim areas such as ethnic Chinese occurs after they conduct the Chinese New Year. According to Johnson et al. (1975), climate factors are related to work patterns or eating abilities which have an indirect effect on cultural patterns of regulation, for example, marriage arrangements. However, the birth pattern in Peninsular Malaysia from 1976 to 1985 underwent changes due to the rapid development of the economy which had an impact on demographic changes. As the use of contraceptives increases and the birth rate decreases, the birth season patterns in Malaysia also disappear (Holland 1989).

Javanese society is an agrarian society that relies on agricultural activities. The agricultural cycle in Java, especially rice fields, starts at the end of the dry season which is in October or November based on the calendar. However, the cycle begins based on the *primbon* book calculation system which is carried out by farmers with the help of *dukun* (shaman) *petangan*, so it is said that belief in *primbon* emerged from the adaptation process of the agricultural environment to cultural behavior patterns (Koentjaraningrat 1994).

Subalidinata (1985) in Poerwadarminta states that the word primbon is defined as *layang kang ngemot pitungan, pethek, lan sapanunggalane* (a letter containing calculations, assumptions, and the like). It is a book containing forecasting and so on. The word *primbon* comes from *pari-imbu-an*, in which the word imbu means to save or store. Iwo in Old Javanese language means to store, so *parimbon* can be defined as "a place to store". It is a book in which all important notes are kept and are not easily memorized by people. In fact, *primbon* is a book where everything related to the life of the Javanese is stored (Soedarsono et al. 1985). *Primbon* contains at least (1) *pranatamangsa*/weather forecast, (2) *pitungan*/calculation, (3) *panagan*/wealth, (4) *pawukon*/harvesting calculation, (5) *katuranggan*, (6) treatment, (7) wirid/religious advice, (8) *aji-aji/jimat* or amulet, (9) *kidung*/chant, (10) premonition, (11) *slametan*/thanksgiving procedures, (12) *sasmita*/supernatural addressing (Endraswara 2012).

The Javanese have a sharp perception of time. They even have a complicated way of determining it. The ability to feel the rhythm of time is determined in a traditional way, one of which is by calculating important moments such as the agricultural cycle, determining the day and month of marriage, relocation, and so on. Calculations are used to determine dates that are religion-magi to start an important job (Koentjaraningrat 1994).

Meijer (1971) argues that the wedding date determination is carried out by calculation which often results in the long delay of the wedding. The months of marriage that are considered "good" for celebrating a wedding (*ijab*) are in the months of *Jumadilakhir*, *Rejeb*, *Ruwah* and *Besar*. Months that are considered "good enough" for marriage (*ijab*) are *Sapar*, *Bakdomulud*, *Jumadilawal*, and *Sawal*. Meanwhile, the months that are considered "abstinence or forbidden" to do marriage is *Suro*, *Mulud*, *Pasa*, and *Sela*. If it is violated, the bride, groom, and their family will have a big disaster in their life (Koentjaraningrat 1994).

Javanese society is a society with an agrarian culture so that one key element in understanding life in Java is their desire for order. This order is perceived to be supernatural and beyond one's direct control. Based on early observations in Blitar and Surabaya, most people still claim to be Javanese, even though their lives have been greatly influenced by modern lifestyles. They believe in *primbon* to determine the time whether the wedding is carried out or not and they adhere to it. This is because, basically, the Javanese want their life to be "*slamet*" or have a safe life so that they will not carry out activities outside

the beliefs that have been agreed upon by their cultural community. Javanese society believes that they have found a reaction in which self-declaration takes place side by side with their lives (Mulder 2006).

The magical and important rule in this matchmaking process is involving the birthdays (*weton*) of the prospective bride and groom that lead the family to negotiate and do calculations with a person who is elder and understands various things that is responsible to do the calculation. The person in charge must be able to do the calculation (*pitungan*) whether or not there is a match between the future bride's and groom's birthdays as an indication of the character of each pair of the couple. The compatibility of this calculation is considered important because it becomes the basis of their family's happiness and longevity. The strong belief in *primbon* to calculate the time of wedding among Javanese has initiated this research which focuses on the influence of *pitungan* or *primbon* calculation on the birth variations of first-born in Javanese and the influence of *roso slamet* or feeling save on the birth variations of first-born and the number of children born in Javanese ethnicity in Indonesia.

Research Method

The research was conducted in Surabaya, Blitar, and some districts of Blitar Regency. This is because the area preserves *Mataraman* culture as the people in their socio-cultural life still obey the values, norms, and rules like the *Mataram* people in the past, such as performing *ruwatan* ritual or traditional ceremonies, cleaning villages, and deciding or celebrating marriages using *pitungan* based on the Javanese calendar (Sutarto 2006).

The research locations of the research subject who lives in Blitar Regency were in the following areas: Kademangan District (Dawuhan, Plosorejo, and Sumberejo Village); Blitar City was particularly in Sananwetan District (Sananwetan and Bendogerit); and Surabaya was in the following areas: Kenjeran District (Tanah Kali Kedinding Sub-district) and Tambaksari District (Gading and Kapas Madya Village). The reason for choosing the area in Kademangan District, Blitar Regency, was because most of the population is Javanese, most of them work as farmers, their level of education was considered low, and many still believe in and understand *pitungan*. Sanawetan District of Blitar was chosen for its Javanese population, many residents work as employees, and most of their education level is Senior High School and Undergraduate. Surabaya was chosen as the research location because it is the second metropolitan city after Jakarta. Surabaya is the city of industry, maritime, and trade that is inhabited by various ethnicities and religions. Data from DPMPTSP of Surabaya City (2017) proves that 83.68% of the area are inhabited by Javanese people.

The sample selection technique was the purposive sampling technique. The samples in this study were couples over 18 years old, couples who were newlywed and had children and did not use contraception at the time of their first marriage, and married couples living at home. The total sample (n) taken from the three populations was obtained from the selected sub-districts in the study based on the population, which was calculated as follows (Mantra 2007):

$$S = \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

Of the 793 couples in Blitar City and Blitar Regency and 654 couples in Surabaya City, the number of couples who met the inclusion criteria was 169 couples in Blitar City and Blitar Regency and 127 couples in Surabaya City. Based on the calculation above, the sample showed $73,76 \approx 74$ pairs in Blitar City, Blitar Regency, and Surabaya City. The number of research subjects per district is shown in Table 1.

Table 1.
The number of research subjects per district

Blitar City	Married couples	Blitar Regency	Married couples	Surabaya City	Married couples
Bendogerit	24	Sumberejo	23	Gading	25
Sananwetan	25	Plosorejo	25	Kapas Madya	25
		Dawuhan	24	Tanah Kali Kedinding	23
Total	49		72		73

Source: Primary data

The independent variable examined in this study was the variable of calculation of marriage. The variable affected in this study was the variable of birth variations of first-born to the married couples who carried out the time of marriage based on the calculation. The intervening variable was the variable of *roso slamet* or feeling safe. The confounding variable was the variable of belief in *primbon*.

Validity is the accuracy of a tool used as a measuring tool for a particular object. This measurement is carried out using the Chi-square correlation technique. This technique aims to test nominal data that is categorical. The benefit of the Chi-square distribution is testing the proportions for multinomial data (Siegel 1997). The calculation of the Chi-square statistical test is useful to see whether or not there is variation in the analyzed variables. These results will present whether the variables are the same or varied, therefore the diversity can be shown. Linear Regression is one of the statistical methods that function to test the extent of the causal relationship between the Causing Factor Variable (X) and the Effect Variable. Simple Linear Regression or commonly known as SLR is also used in production to make predictions about quality and quantity characteristics.

Results and Discussion

Research data using the Chi-square test and Linear Regression test

The following are the results of the processed data using the Chi-square and the Linear Regression statistical test.

Table 2.
Analysis results of Chi-square and Linear Regression about the variable of believe/disbelieve in *primbon* on the variable of carrying our/not carrying out *pitungan*

Primbon	Pitungan divided by 9	Pitungan divided by 5 and 4	Unknown
Strongly believe	48	53	47
Believe	11	14	12
Disbelieve	0	0	8
Total	59	67	67

Source: Primary data

Pearson Chi-square	Value	Df	Asymp. Sig. (2 sides)
	15.805	4	0.003

Source: Primary data

Regression	B	Std. Error	β	T	Sig.
	0.272	0.108	0.179	2.514	0.013

Source: Primary data

Based on Table 2, the results of the Chi-square test analysis show that the variable of belief in *primbon* on the variable of *pitungan* shows a probability value = 0.003. This result is less than the alpha of 5%, meaning that there is an effect of the variable of belief in *primbon* on the variable of *pitungan*.

The results of the Linear Regression analysis show that Y = 1.695 + 0.272 X, where the effect of the variable of belief in *primbon* on the variable of *pitungan* is 0.272 (positive) and the probability value = 0.013 is smaller than the alpha of 5%. Thus, it is significant that the more married couples believe in the *primbon*, then the couples more likely to carry out *pitungan* (Table 2).

Table 3.
Analysis results of Chi-square and Linear Regression about the variable of believe/disbelieve in *primbon* to the variable of birth variations of first-born

Primbon	Fast (<13 months)	Average (13-23 months)	Long (>24 months)
Strongly believe	86	45	17
Believe	19	13	5
Disbelieve	2	2	4
Total	107	60	25

Source: Primary data

	Value	df	Asymp. Sig. (2 sides)
Pearson Chi-square	10.308	4	0.036

Source: Primary data

	B	Std. Error	β	T	Sig.
Regression	0.225	0.096	0.167	2.337	0.020

Source: Primary data

As shown in Table 3, the results of the Chi-square test analysis showed that the variable of belief in *primbon* towards the birth variations of first-born has a probability value of = 0.036. This result is less than the alpha of 5%, which means that there is an effect of the variable of belief in *primbon* on the variable of birth variations of first-born.

The results of the Linear Regression analysis show that Y = 1.294 + 0.225 X, where the effect of the variable of belief in *primbon* on the variable of birth variations of first-born is 0.225 (positive), and the probability value = 0.020 is smaller than the alpha of 5%. Thus, it is significant that married couples are increasingly believing in *primbon* as they are getting their first-born faster (Table 3).

Table 4.
Analysis results of Chi-square and Linear Regression the variable of believe/disbelieve in *primbon* on the variable of the number of children of married couple

Primbon	At least 2	More than 2
Strongly believe	72	76
Believe	21	16
Disbelieve	7	1
Total	100	93

Source: Primary data

	Value	Df	Asymp. Sig. (2 sides)
Pearson Chi-square	5.037	2	0.081

Source: Primary data

	B	Std. Error	β	T	Sig.
Regression	-0.138	0.067	-0.147	-2.057	0.041

Source: Primary data

In Table 4, the results of the Chi-square test analysis of the relationship between the variable of belief in *primbon* on the variable of the number of children of married couple has a probability value = 0.081. This result is smaller than the alpha of 10%, which indicates that there is an effect between both variables.

The results of the linear regression analysis show that Y = 1.658 – 0.138 X, where the effect of the variable of belief in *primbon* on the variable of the number of children is -0.138 (negative) and the probability value = 0.041 is smaller than the alpha of 10% which is significant, with a negative regression coefficient explains the more the married couples believe in *primbon*, the more the number of children will be born (Table 4).

Table 5.

Analysis results of Chi-square and Linear Regression about the variable of carrying out/not carrying out pitungan to the variable of birth variations of first-born

	Fast (<13 months)	Average (14-23 months)	Long (>24 months)
Pitungan divided by 9	40	13	6
Pitungan divided by 4 and 5	34	27	6
Unknown	31	18	18
Total	105	58	30

Source: Primary data

	Value	df	Asymp. Sig. (2 sides)
Pearson Chi-square	15.247	4	0.004

Source: Primary data

	B	Std. Error	β	T	Sig.
Regression	0.192	0.065	0.209	2.954	0.004

Source: Primary data

Based on Table 5, the results of the Chi-square analysis explain that the relationship between the variable of carrying out/not carrying out *pitungan* and the variable of the birth variation of first-born shows a probability value = 0.004. This result is less than the alpha of 5%, which means that there is an effect of the variable of carrying out/not carrying out *pitungan* and the variable of the birth variation of first-born.

The results of the regression analysis show that Y = 1.220 + 0.192 X, where the effect of both variables is 0.192 and the probability value = 0.004 is smaller than the alpha of 5%, which is significant (Table 5). The value of the positive regression coefficient concludes that the higher *pitungan* conducted, the faster the birth variation of the first-born.

Table 6.

Analysis results of Chi-square and Linear Regression about the variable of carrying out/not carrying out *pitungan* on the variable of the number of children of married couple

	At least 2	More than 2
Pitungan divided by 9	25	34
Pitungan divided by 4 and 5	38	29
Unknown	47	20
Total	110	83

Source: Primary data

	Value	Df	Asymp. Sig. (2 sides)
Pearson Chi-square	9.879	2	0.007

Source: Primary data

	B	Std. Error	β	T	Sig.
Regression	-0.139	0.043	-0.226	-3.209	0.002

Source: Primary data

Table 6 presents the results of the Chi-square analysis which shows the relationship between the variable of carrying out/not carrying out *pitungan* on the variable of the number of children of married couple that the probability value = 0.007. This result is less than the alpha of 5%, which means that there is an effect between both variables.

The results of the linear regression analysis show that Y = 1.713 – 0.139 X, where the effect of these variables is -0.139 and the probability value = 0.002 is smaller than the alpha of 5% which means that it is significant. The regression coefficient is negative, so that the higher *pitungan* is conducted by the newlyweds, the higher tendency of having more than two children (Table 6).

Table 7.
Analysis results of Chi-square and Linear Regression about the variable of feeling safe on the variable of carrying out *slametan*

Feeling safe	Frequent	Occasional	Never
Tentrem and safe	39	39	0
Healthy	13	6	1
Rahayu	63	30	2
Total	115	75	3

Source: Primary data

Pearson Chi-square	Value	Df	Asymp. Sig. (2 sides)
	9.140	4	0.058

Source: Primary data

Regression	B	Std. Error	β	T	Sig.
	-0.229	0.129	-0.127	-1.773	0.078

Source: Primary data

Table 7 shows the results of the Chi-square analysis which explains that the relationship between the variable of feeling safe and the variable of carrying out *slametan* with a probability value = 0.058. This result is less than the alpha of 10%, which means that there is an effect between the variables.

The result of regression analysis shows that Y = 2.413 – 0.229 X, where the effect of carrying out *slametan* on feeling safe is -0.229 and the probability value = 0.078 is smaller than the alpha of 10%, which means it is significant (Table 7). The negative coefficient in the equation means that the more often *slametan* is carried out, the more healthy, peaceful, safe, and happy the people become.

Table 8.
Analysis results of Chi-square and Linear Regression about the variable of believe/disbelieve in *primbon* on the variable of feeling safe

Primbon	*Tentrem* and safe	Healthy	*Rahayu*
Strongly believe	59	15	74
Believe	17	2	18
Disbelieve	2	2	4
Total	78	19	96

Source: Primary data

Pearson Chi-square	Value	df	Asymp. Sig. (2 sides)
	3.392	4	0.494

Source: Primary data

Regression	B	Std. Error	β	T	Sig.
	0.001	0.129	0.001	0.008	0.994

Source: Primary data

Table 8 shows the results of the Chi-square test analysis which explains that the variable of belief in *primbon* on the variable of the feeling safe with a probability value = 0.494, in which the result is higher than the alpha of 5%. It means that there is no effect between the variable of belief in *primbon* and the variable of feeling safe.

The results of the regression analysis show that Y = 2.092 + 0.001 X, where the effect of the variable of belief in *primbon* on the variable of feeling safe is 0.001 (positive) and the probability value = 0.994 is higher than the alpha of 5%, which shows no significance of the variable of belief in *primbon* on the variable of feeling safe (Table 8).

Table 9.
Analysis results of Chi-square and Linear Regression about the variable of carrying out/not carrying out *pitungan* on the variable of feeling safe

	Tentrem **and safe**	**Healthy**	*Rahayu*
Pitungan divided by 9	24	5	30
Pitungan divided by 4 and 5	29	4	34
Unknown	25	10	32
Total	78	19	96

Source: Primary data

Pearson Chi-square	**Value**	**Df**	**Asymp. Sig. (2 sides)**
	3.269	4	0.514

Source: Primary data

Regression	**B**	**Std. Error**	**β**	**T**	**Sig.**
	0.002	0.085	0.002	0.24	0.981

Source: Primary data

Table 9 shows the results of the Chi-square analysis of the relationship between the variable of carrying out/not carrying out *pitungan* and the variable of feeling safe with the probability value = 0.514. The result is higher than the alpha of 5%, so that there is no effect between the variables.

The results of regression analysis show that Y = 2.089 + 0.002 X, where the effect of carrying out/not carrying out *pitungan* on feeling safe is + 0.002 (positive) and the probability value = 0,981 is higher than the alpha of 5%, which means it is not significant (Table 9).

Table 10.
Analysis results of Chi-square and Linear Regression of the variable of feeling safe on the variable of birth variation of first-born

Feeling safe	**Fast (<13 months)**	**Average (14-23 months)**	**Long (>24 months)**
Tentrem and safe	44	23	11
Healthy	10	4	5
Rahayu	53	33	10
Total	107	60	26

Source: Primary data

Pearson Chi-square	**Value**	**df**	**Asymp. Sig. (2 sides)**
	6.548	4	0.162

Source: Primary data

Regression	**B**	**Std. Error**	**β**	**T**	**Sig.**
	-0.016	0.055	-0.021	-0.296	0.767

Source: Primary data

Table 10 summarizes the results of the Chi-square analysis which explains the relationship between the variable of feeling safe on the variable of the birth variation of first-born with a probability value = 0.162, which results in higher than the alpha of 5%. The result indicates no effect between the variables.

The results of the regression analysis show that Y = 1.635 – 0.016 X, where the effect of the variable of feeling safe on the variable of the birth variation of first-born is -0.016 and the probability value = 0.767 is higher than the alpha of 5% which means it is not significant (Table 10).

Table 11.
Analysis results of Chi-square and Linear Regression about the variable of feeling safe on the variable of the number of children

Feeling safe	At least 2	More than 2
Tentrem and safe	46	32
Healthy	10	9
Rahayu	54	42
Total	110	83

Source: Primary data

Pearson Chi-square	Value	Df	Asymp. Sig. (2 sides)
	0.294	2	0.863

Source: Primary data

Regression	B	Std. Error	β	T	Sig.
	0.016	0.038	0.030	0.413	0.680

Source: Primary data

Table 11 shows the results of the Chi-square analysis in Table 9 between the variable of feeling safe and the variable of the number of children with a probability value = 0.863. This result is higher than the alpha of 5%, so that there is no effect between these variables.

The results of the regression analysis show that Y = 1.397 + 0.016 X, in which feeling safe and the number of children is 0.016 and the probability value = 0.680 is higher than the alpha of 5% which means it is not significant (Table 11).

Believe in *primbon* and *pitungan* on the birth variations of first-born and the number of children in Javanese married couple

The results of the study using the Chi-square and Linear Regression statistical tests prove an effect of the variable of *primbon* on the variable of *pitungan*, that the more the newlyweds believe in the *primbon*, the more the couple will carry out *pitungan* in determining the time of their marriage (Table 2). The belief in *primbon* is in the third layer of cultural form. It is as a socio-cultural system which exists in each individual of the Javanese ethnicity and is formed in a complex collective mind which is not a single idea but has been a series of various ideas as it is used as a code of conduct (Koentjaraningrat 2005). Certainly, nature does not create changes, but culture does. The reason is it has an important effect on adjustments that affects human biological appearance (Haviland 1999).

Belief in *primbon* is originally from an agrarian culture, in which issues concerning seed, birth, growth, life and death are experiential results (the result of life experience) which is cultural cosmic hence respect for ancestors (ancestor-culture) becomes important since they are considered as living intermediaries related to life and death. Agricultural culture is a process of human adaptation to the environment. The beginning of the agricultural cycle is carried out using the calculation system in the *primbon* book. Belief and behavior are always closely related even though they do not have to be regarded as a single unit (Malefitj 1989). The belief system is a culture but the behavior exists to reject or accept which is social behavior from learning outcomes, the results of long-standing awareness, internalization, and socialization from generation to generation members of the community.

Culture is a behavioral program of a population in organizing individuals, groups, and the environment into a high-quality system that adapts to its territory (Odum 1992). The Javanese had had a calculation of the time before the arrival of Buddhism, Hinduism, and Islam. *Primbon* and *pitungan* are native Javanese culture. Javanese people had had a time system, for example, a baby who is born will be attached to *weton/neptu/pasaran*, in which the names of the months and years of Javanese are from

the original Javanese language. Neptu is the total value calculated by adding up the value of the day (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday) and its *pasaran*/ Javanese calendar (*Pahing, Pon, Wage, Kliwon*, and *Legi*). Every Javanese must know the *weton/neptu/ pasaran* because to make pitungan in determining the time of marriage is based on the calculation of the two *weton/neptu/pasaran* of the brides and grooms. The meaning of *Pawukon* or *wuku* = star = time is rahsa (having an external sense/*roso jaba*), internal sense/*roso jero* and sense of truth/*roso sejati*. Basically, humans have a basic innate nature from birth, so that in the development and journey of their life, they realize their life expectancy which is *slamet* in the world and the hereafter (Soedarsono et al. 1985).

The variable of belief in *primbon* has a significant effect on the variable of birth variations of first-born, and the variable of the number of children of married couple (Table 3 & 4). The regression test proved that there is a significant impact as the more married couples believe in the *primbon*, the faster they give birth to their first child. Marriage is carried out so that every adult is always looking for continuity to have children. The function and position of parents in Javanese society are representatives of life, have a high moral position, and are obliged to educate and care for their children until they are ready to take over the task of continuing their life (Mulder 1996).

The value of children for Javanese people is as a guarantee of old age, in which parents have a bond of emotional feelings with the child. Children are considered as a source of warmth and happiness in their family, therefore the subjects of married couples hardly have delayed pregnancy since their wedding, in which the statistical results proved significant. The more they believe in *primbon*, the more children are born by married couples (Table 4). In this case, children have economic value for the family workforce in communities whose livelihoods are farming, such as in the farming communities in Blitar Regency (Plosorejo, Sumberejo and Dawuhan) and Surabaya City (Gading), in which they generally have more than two children.

The parents or other people who are respected and understand *pitungan* will conduct *pitungan* to determine the time of marriage. The results of statistical tests proved that there is a significant effect on the variable of *pitungan* on the variable of birth variations of first-born, and the variable of the number of children of married couple. The Linear Regression test explains that the more couples conduct *pitungan*, the faster couples give birth to their first child and the more children they have (more than two children are born) (Table 5 & 6). A study conducted by Hendrawati (2001) at the Surabaya Catholic Hospital also showed that there was a significant relationship between the mating season and birth variations because, at that period, Surabaya was inhabited by mostly Javanese. *Pitungan* underlies the bride and groom to determine the time of their marriage. The calculation of the time of marriage is obtained from the number of *weton/neptu/pasaran* of each couple whose number is added up and divided by the number 9, number 5, and number 4. The final result is whether it is profitable for the pair of the prospective bride and groom or not. Dividing the number by 9, 5, and 4 depends on the belief who conduct *pitungan*. If there is a discrepancy, the calculation will be carried out again based on the front letter of the couple. However, in this study, none of them used *pitungan* based on the first letter of the bride and groom.

The formation of behavior or attitudes is very much influenced by our social thinking. Parental care provides an awareness of how we cannot avoid beliefs that have been transferred to the subconscious mind when we were children for about the first 10 years, without discriminating and limiting the analysis of our conscious thoughts. Since then, our conscious mind controls up to 95% of behavior, which is at the core of our life program (Lipton 2016). This shows the overall mechanism that the body is always affected by immaterial thoughts (something that is considered unimportant). Positive thinking is very important and feeling happy (well-being) is beneficial for health. Therefore, the more the couple believe in *primbon* and *pitungan*, the faster the first child is born and the more the number of children is born.

The variable of belief in *primbon* and *pitungan* on the variable of feeling safe is not proven well by the Chi-square and Linear Regression statistical tests (Table 8 & 9). Likewise, the variable of feeling safe on

the variable of birth variations of first-born and the number of children of married couple is not proven to be good with the Chi-square and Linear Regression statistical tests (Table 10 & 11).

The variable of feeling safe on the variable of carrying out *slametan* is proven by the Chi-square statistical test, where the probability value is smaller than the alpha of 5%, which means that there is a significant relationship between the variable of feeling safe and carrying out *slametan* (Table 7). Linear Regression test shows that the more often people carry out slametan, the more it provides feeling safe. Javanese people who live in *Blitar* and Surabaya never neglect the *slametan* ritual. The meaning of *slamet* as a source of happiness cannot be separated from the ritual activities or ceremonies that are often carried out by Javanese people, whether those are considered small, simple, or formal ceremonies. *Slametan* is a communal party that symbolizes the mystical and social unity of their lives. Relatives, neighbors, and even ancestors who have died and the gods all sit together to vow to help each other to cooperate and there is social and occult recognition that gives blessing or justification for the activities that are carried out.

Slametan is always held in every activity of their life such as birth, marriage, death, relocation, planting, and harvesting, healing, and so on. The purpose of carrying out a *slametan* is that family and invited guests to get peace of mind and body or life which the Javanese call *slamet*.

The reason the Javanese people organize *slametan* is to protect themselves from the interference of spirits so that they feel no different from others by carrying out *slametan*. Their hearts feel safe and at peace with the environment around them because in slametan everyone is treated equally. The definition of the word *slamet* is *gak-onok-opo-opo* (nothing happens) and at peace with the surrounding conditions.

Slametan consists of four types (Geertz 2014); (1) life crisis of birth, circumcision, marriage, and death, (2) related to Islam holidays, (3) social integration such as cleaning the village, (4) *slametan sela* which is held depending on the events that are considered extraordinary such as relocation, changing names, being exposed to divination and so on. An event ordained by God is birth so that the *slametan* of birth and death are determined according to birth and death. Meanwhile, *slametan* for marriage, circumcision, or a place to live need to be determined by a calculation which is called *pitungan*.

The theory implication and new research findings

Research on *pitungan* and birth variations of first-born has never been studied in terms of how the process determines the time of marriage as it regulates the birth of the first child in Javanese communities. The results of this study are interesting because human behavior is not only influenced by social norms, cultural rules that generate a system that is tangible, perceived and shared by members of the supporting community, such as doing *pitungan* to influence biological processes and genetic factors. According to the theory of Evolutionary Psychology by David M. Buss, the choice of behavior, emotional reaction, and attitude to some extent is influenced by the human biological trait (Baron 2004). Inheritance factors (innate) cause variations to be passed on to the next generation, while selection refers to the fact that superior individuals will reproduce and survive, then select their partners to inherit the offspring to be born. The selection of a mate usually follows and has characteristics similar to our ancestors (Tassinary & Hansen in Baron 2004).

Theory of Planned Behavior argues that by doing *pitungan* to determine the time of marriage, it leads the bride and groom to feel confident that their life will be happy. Belief in the calculation will be a desirable behavior and can overcome internal barriers. As with the Theory of Reasoned Action in the Theory of Planned Behavior, it includes a degree of irrationality and views social factors as normative beliefs. The explanation of *pitungan* is to select and plan when the wedding is considered "good" by the Javanese. The concept of a "good" day and month is an irrational factor, but the process of *pitungan* results will be rational if it directs at a specific goal, such as to create a *slamet* life without any disturbance, both physically and mentally, which results in the peace of mind of a couple. The more they believe in

primbon, the more they conduct *pitungan*. Couples who carry out *pitungan* will give birth to children faster and have more than 2 children.

The choice of whether to carry out *pitungan* or not has gone through the choice of behavior that has been considered, the consequences and results have been evaluated and a decision has been made to carry out or not carry out *pitungan* which is reflected in the behavioral goal. It is peace of mind which is defined as life *slamet* mentally and physically. *Pitungan* is carried out by the parents of usually the bride and groom.

Pitungan is the behavior of calculating whether or not the match of the birthdays (*weton/neptu/pasaran*) of each prospective bride and groom. The suitability of this calculation is considered important for the prospective couple because it is considered as the basis for predicting a happy life, permanence, harmony, and family safety in the future. *Pitungan* is still carried out by a married couple as a form of obedience to their parents and ancestors (ancestral-cult). It is a form of the subjective norm that is believed by couple to gain peace of mind because the couples have made peace with their surroundings, including the unseen realm. The behavior of carrying out *pitungan* based on *primbon* is proven to have a significant effect on birth variations of first-born and the number of children of married couple due to the peace of mind manifested by feeling safe. The feeling brings the body and mind as a source of mixed energy and in a calm mind, there is a healthy body, so that the calculations are carried out. Married couples show a comprehensive mechanism of how the body (physical) is influenced by immaterial thoughts (something that is often considered unimportant) to become active energy or become a barrier to cell function to produce protein through the mechanism of repair or damage to the body. This study proves that the peace of mind of the couple will affect the speed, average, and delay of giving birth to the first child and the number of children born.

Research by Lipton (2016) explains that the power of the mind and cells move into the mind of the body and begin to work, so that positive thinking is very powerful in controlling our bodies and our lives. Positive thinking is very important and feeling happy (well-being) will transform our thoughts into positive energy, energizing life, and eliminating all bad prejudices. Positive thinking will have an impact on all life, especially on health.

Conclusion

Based on the results of the research and discussion above, it can be concluded that there is an impact of *pitungan* on the birth variations of first-born ($p = 0.004$), that the more the couple carry out the *pitungan*, the faster they give birth to their first child ($p = 0.004$) and the more children are born ($p = 0.002$). In this study, it is proven that there is an effect of belief in *primbon* on the birth variations of first-born ($p = 0.036$) and the number of children born ($p = 0.081$), that the more the married couple believe in *primbon*, the faster the couple give birth to their first child ($p = 0.020$) and the more children are born ($p = 0.041$).

The *slametan* ceremony is also statistically proven to feeling safe ($p = 0.058$), meaning that the more often husband and wife practice *slametan*, the spouses feel *slamet* more increasingly ($p = 0.058$). *Slametan* ceremonies are still often carried out by the people of Blitar and Surabaya. Apart from being an expression of gratitude, *slametan* is done more to avoid the bad influences around them. By performing individual *slametan*, they feel safe and peaceful with their physical and magical environment.

The results of the statistical test of *pitungan* and belief in primbon on feeling safe explained that there is no effect of the couple who carried out the *pitungan* ($p = 0.514$) and belief in *primbon* ($p = 0.494$) with feeling safe. The reason why there is no effect on this measurement is the possibility that spouses do not carry out *pitungan* and do not believe in *primbon*. This study also does not carry out medical examinations such as hormonal examinations. However, additional measurement indicators are carried out, especially in the feeling safe concept. One of the reasons for the absence of feeling safe effect on the birth variation of first-born ($p = 0.162$) and the number of children of married couple ($p = 0.863$)

is the belief in *primbon* and *pitungan* is increasingly changing, in which spouses think that *primbon* and *pitungan* are Javanese customary issues. Moreover, they do this because it is based on parental obedience.

Basically, the belief in *primbon* in the Javanese ethnic community sooner or later experiences a shift and change as a result of the growth and development of a culture that is called by the current generation a "super organic" culture which is the creation of the community itself and they become followers of the culture (McGee & Warms 2013). They are mostly hardly controlled, but humanistic reactions will quickly react to these changes. The happiness of this ignorance will be experienced by individuals, while the culture known as social heritage is only a legacy that may remain limited to respecting the heritage of their ancestors.

The results of this study are expected to provide information to paramedics and hospitals about the birth season in certain months so that related parties, especially paramedics, hospitals, and health centers, particularly those in rural areas, can anticipate and prepare for the peak of birth needs, and provide input of knowledge to prospective couples of childbearing age to plan marriage physically and mentally. Therefore, prospective mothers can prepare for pregnancy and give birth to healthy children, especially in Javanese society in Indonesia.

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