Hajj Health Management Focusing on the Risk Factors Management

Herry Darsim Gaffar[1], Umar Fahmi Achmadi[2], Syamsu[3], Ilhamjaya Patellongi[4]

[1]Postgraduate Program, Medical Faculty, Hasanuddin University, Makassar, Indonesia
[2]Professor of Faculty of Public Health, Indonesia University, Jakarta, Indonesia
[3,4]Medical Faculty, Hasanuddin University, Makassar, Indonesia

Abstract- This study aimed to find out the risk factors with the most responsible for the death cases among Hajj Pilgrims, and the way in decreasing mortality risk through the effort of improved management of health programs of Indonesian Hajj Pilgrim (IHP).This research was conducted as a descriptive-analytic study. The subjects were 531 of Indonesian hajj pilgrims who died in 2011 (Pilgrims 2011). Data were processed from secondary data and was analyzed quantitatively by computerized and manual techniques. The analysis was also supported by primary data obtained by using in-depth interview technique and focus group discussions (FGD).The results revealed that risks factors with the most significant role in the death cases of Jamaah were internal risks factors which may formed the condition that included high risks disease; Physical activities and mobility that exceeded health condition, lack of balanced nutrition supply and dehydration. The condition became more serious with the exposure toward some external risks factors which formed the condition that included extreme environmental condition, crowdedness, and long distance route. These conditions resulted in some health problems including; extraordinary physical tiredness and exhaustion (physical stress), mental stress and cultural shock, diseases, or even death. This was proved with the Crude Death Rate (CDR) of Jamaah 2011 in the research variables; age ≥ 60 in 2011 was higher than age < 60 in 2011 (5.0 $^{0}/_{00}$: 2.0 $^{0}/_{00}$). Makkah Node (Simpul Makkah) 2011 was higher than Madinah Node 2011 (1.84 $^{0}/_{00}$: 0.32 $^{0}/_{00}$; Post-Armina Period (Period Pasca-Armina 2011) was higher than those in Pre-Armina Period 2011 with (1.66$^{0}/_{00}$: 0.60 $^{0}/_{00}$); and Second Wave (Gelombang Kedua) 2011 was higher than First Wave 2011 (3.05$^{0}/_{00}$: 2.34$^{0}/_{00}$). It is necessary to conduct some effort to improve the management of risks factors and minimization of medical risks in order to improve prime health condition. This can be conducted by implementing the model of hajj health management focusing on the Management of Risks Factors (risk factors, potential risks, and risks management), and early-oriented activities conducted in balance with the advanced-oriented activities; in order to decrease illness rate and death rate among Jamaah.

Index Terms- Indonesian Hajj Pilgrims (Jamaah), Jamaah death rate, risk factors, hajj health management.

I. INTRODUCTION

Hajj is the fifth pillar of Islam in the form of a series of ritual activities, which are conducted every year in the Holy Land (Saudi Arabia).More than two million Muslims (pilgrims) from various ethnic groups of more than 140 countries worldwide come for this ritual. This event is a unique mass migration, which is in a state of extraordinary density of people in various locations with extreme environmental conditions that occur in the same period (Hajj's Season). It attributed the epidemiological determinants of health as a risk factor or risk behavior, which may result in morbidity and mortality that caused by infectious diseases and non-communicable diseases (Abraham, 2008; Ahmed, et al., 2010; Khan, et al., 2010; Memish, 2010).

Ability of health should not be interpreted in terms of fit or unfit as a "black-white" (dichotomous), especially for not allowing to perform the pilgrimage due to the health reason, as other public health fields required should befits the disease-free. Common sense in performing Hajj is healthy that means: physically, mentally, and socially, which is a continuum or range of the lowest to the highest relativity called relative healthy, that cannot be separated from the "interference" of God Almighty. (Achmadi, 2012)

Implementation of Health Hajj Indonesia programs which has been implemented by the Government with various efforts to improve from year to year, but still found the health problems that affect the high morbidity and mortality of Jamaah. In the last ten years, the death rate reached 2.1 to 3.2 per 1.000 (Ministry of Health, 2009), nearly 70 % incidence of deaths in the age group 60 years and over (Ministry of Health, 2010).

If these data are compared with data pilgrims who died in a few countries in the world, then the death of Indonesian pilgrims still higher ranges from 200-330 per 100.000. Data of Indonesia Hajj Health Profile 2011 shows Crude Death Rate (CDR) Indonesian in 2010 = $6^{0}/_{00}$ and an estimated total population of Indonesia in 2011 a number of 241.182.182 people, while the estimated number of Indonesian population aged 15 years and over 170.011 .732 people totaling, so the number of deaths is 170.011.732 x 6 $^{0}/_{00}$ = 1.020070 people (Pusdatin– Kemenkes RI, 2010). Similarly, the number of High Risk Jamaah (Jamaah Risti) over a quarter of the total mortality rate 2,3$^{0}/_{00}$, which reflects the picture of the reality of Indonesian Hajj health problems.

According to data reported by Pane (2007) a recapitulation of the Jamaah Died in 2000-2007, which showed that the incidence of death: in the location of Makkah, Madinah and Mina followed, then Airport Saudi Arabia/Jeddah, Arafat - Muzdalifah, Homeland (Indonesia), and Aircraft. Furthermore, the percentage Pilgrims died in 2006 - 2007, namely: Gender Male 56.8 % (2006) and 65.7 % (2007), and ≥ 60 year age group

70.3 % (2006) and 73, 6 % (2007), respectively. So it can be concluded tendency that more male Jamaah death at the age group of ≥ 60 years.

The morbidity and mortality occurred mostly when Jamaah was on the scene and the venue due to potential risks of health problems or suffering from a certain diseases. In this study, the location and the venue is termed as Risk Node (Node) and Risk Point (Point), which identified at 7 (seven) pieces nodes and 21 points on the Jamaah Journey, which is 6 (six) fruit Loop is in the region of Labor Organizing Committee Hajj (Daker PPIH) and 1 (one) node in Jamaah transport vehicles.

The health status of each Jamaah could be detected in a health screening in the Indonesia before departure to the Holy Land (Saudi Arabia). The health status of the Jamaah will be a change in a particular variable, due to the buildup of accumulated exposure of health risk factors, which depend on the level of exposure such as length (duration), strength (intensity), the number / time (frequency / timing) exposure, as well as air that may influence on health conditions (Anderson & Bell, 2011) of Jamaah is concerned during the pilgrimage undertaken. Changes meant that identified on the further health condition / final form of health problems experienced or illness, even death / death with a diagnosis later the term conditions continue / end. Thus, each Jamaah should prepare to make adjustments to the environment encountered during carry out the pilgrimage, either individually or in groups in the form of risk factor management effort or the health risk management of Hajj (Achmadi, 2012).

II. MATERIALS AND METODHS

2.1 Research Design

This research aimed find out the risk factors with the most responsible for the death cases among Hajj Pilgrims; and the way in decreasing mortality risk through the effort of improved management of health programs of Indonesian Hajj Pilgrim (IHP). This observational research was conducted with cross - sectional study design or time point approach, (Notoatmodjo, 2005).This design is not exactly used to analyze the causal relationship between the exposure to the disease (Murti, 1997; Notoatmodjo, 2005), because cannot give a definitive answer about the causes and relationships cause effect clearly and explicitly (Noor, 2007). This study used quantitative data in the form of secondary data based, with one character is having a chronological time and place of death, and medical diagnosis based on the provisions of the International Classification of Diseases - Tenth Revision (ICD - X). The data is prominent medical diagnosis or dominant or medical diagnosis, this data is first on the list of pilgrims Data Died in 2011 which assumed had causal linkages between the High Risks condition (Risti) for death (there are 1-4 types of medical diagnosis) and is considered a major medical diagnosis.

The results of quantitative research obtained from secondary data, further supported by the results of qualitative study and qualitative data. In order to sharpen the results we focus on the formulation of research problems and provide space interactions between variables, as well as strengthen the argument take the conclusion of researchers in the study, that is by undertake the deepening and expansion of the focus of the research problem (Sugiyono, 2011).The second form of results of these studies are expected to reveal the essence (things implied) of the problematic phenomenon of potential issues as substance or content of research, which is a combination of phenomena: epidemiological, medical, social (ritual), and managerial.

2.2 Population and Research Sample

Population and sample in this study was total sampling, it is the whole of Indonesian pilgrims who died in 2011.

2.3 Time and Location Research

This study was conducted from October 2011 to October 2012, which was held in Jakarta and Makassar.

2.4 Data Collection

1. Qualitative data is Indonesian Hajj Pilgrims who died in 2011 (Pilgrims Died 2011) obtained from Hajj Health Center - Ministry of Health of the Republic of Indonesia (Puskes Haji – Kemenkes RI) through the Integrated Computerized Hajj Health Information System (Siskohatkes).

2. Qualitative data is the result of in-depth interviews and focus group discussions / focused group discussion (FGD) from informant filed in accordance with the questions on the sheet in-depth interview guide and focus group discussion guide to the informant. Both were conducted on 12 informant mentioned above, which is considered to be representative and have the authority as the main duties and functions as well as responsibilities as structural and functional officials.

3. This study was conducted using a voice recorder (tape recorder), image recording device (camera), and records as material / documentation research evidence.

2.5 Data Collection Procedures

Data collection was conducted in November 2011 until March 2012, begins with the retrieval of application data through a data request an official letter signed by the Chairman of the Doctoral Program in Medical Science Graduate Program of Hasanuddin University. Then in the building of Hajj Health Center - Ministry of Health Indonesia (Puskeshaji–Kemenkes RI) which is primarily a data Siskohatkes institutional internal data, as well as in the Republic of Indonesia 's Ministry of Religious Affairs (Kemenag RI) in Jakarta. The data have been obtained subsequently processed and analyzed in accordance formulation of the problem and research objectives. The qualitative data obtained after in-depth interviews and focus group discussions (FGD), which involves three main or central issue, namely: risk factors, potential risks, and risk management. In addition, it was supported also by data from other issues that are considered to have relevance and urgency, such as: policy / regulation, strategy / system, goals and objectives, and procedural mechanisms of the implementation of health programs Indonesian Hajj (PKHI), as well as health risk management Hajj (MRKH).

Informants were selected based on criteria, namely: know and master the issues, engage and handle and/or direct experience in the implementation of program implementation Indonesian Hajj (PPHI), particularly the Indonesian Hajj health programs (PKHI), and can provide information that is expected to researchers. The course of the implementation of deep interview and focus group discussion expected to take place in a cooperative and interactive. It results enabled by optimally

synchronized or combined each other to strengthen the data to obtain more accurate information, broad, and deep.

2.6 Data Analysis Techniques

Quantitative data analysis techniques performed by descriptive - analytic and processing through the computerized calculation of "manual" or using computation "simple algebraic equations", in order to obtain information regarding the description of the Jamaah Died in 2011.Technical analysis of the qualitative data were analyzed with the following phases: (1) transcription, reduction, and editing, (2) analysis the content and essence, (3) the analysis of meaning and interpretation, and (4) making the conclusion and recommendations (Kusnanto, 2000). Furthermore, the analysis of quantitative data with qualitative data are combined in a way that is clarity verification, to strengthen the findings of the quantitative data analysis.

2.7 Identification of Variables, Operational Definitions, Objective criteria, and Scale Measurement

1. Dependent Variable: Death Jamaah.

a. Operational definition refers to the extent the loss of vital signs that are fixed medically (WHO, 2003).In Indonesian pilgrims who died in 2011 (abbreviated: Jamaah Died 2011)

b. Objective criteria is each person in the data Pilgrims Died 2011.

c. Measurement scales: nominal.

2. Independent Variables

2.1 Age Group.

a. Operational definition: is the age group in this study is restricted to age 60 years.

b. Objective criteria: (1) age group 60 years and over (age $\geq$ 60) and the age group under 60 years old (age < 60)

c. Measurement scales: nominal.

2.2 Risk Node (Node).

a. Operational definition: is a node in the form of location and place Jamaah doing physical activity (ritual and routine activities) or risk potentially prone to health problems and even death or illness / death. There were seven nodes, namely: six nodes in the region of Labor Organizing Committee Hajj and one node not in Daker area or are in transit or in a transport vehicle Jamaah.

b. Objective criteria:

(1)Risk Node 1or Homeland Node (S1)
(2) Risk Node 2 or Vehicle Node (S2)
(3) Risk Node3 or Airport in Saudi Arabia /Jeddah Node (S3)
(4) Risk Node 4 or Madinah Node (S4)
(5) Risk Node 5 or Makkah Node (S5)
(6) Risk Node 6 or Arafat – Muzdalifah Node (S6)
(7) Risk Node 7 or Mina Node (S7)

c. Measurement scales: nominal.

2.3 Procession of Hajj Period (Period).

a. Operational definition : is a period in the form of a span of time or a certain time during the journey undertaken by regular Jamaah / Kloter to perform ritual and routine activity, ie the number of days as the average travel time of 40 days, divided into 3 (three) period.

b. Objective criteria :

(1)Hajj Procession Period - 1 or Pra-Armina Period (P1), is the beginning of a period Pra-Hajj / Embarkation Hajj up to one day before Tarwiyah or 7 Dzulhijjah.

(2)Hajj Procession Period - 2 or Armina Period (P2), is the period of the pilgrimage which began Tarwiyah at the 8th Day Dzulhijjah, then when execution ritual standing up to the implementation date of hurling Jamarat or 12-13 Dzulhijjah, the average travel time 5,5 days; when they are in Arafat – Muzdalifah Node (S5) and Mina Node (S7), as well as in Vehicle Node (S2): Bus transport. Jamaah.

(3)Hajj Procession Period - 3 or Period Pasca-Armina or Period Post - Armina (P3), is post hajj period which began on completion of hurling Jamarat, ie after leaving Mina Node (S7) to be re-Hajj dormitory/Debarkation Hajj.

c. Measurement scales: nominal.

2.4 Jamaah Wave

a. Operational definition

It is a stage or stages in the form of trips Pilgrimage Travel Plot (Plot Journey) is undertaken by regular Jamaah and grouped in Group Fly (Kloter), ie the number of days as the average travel time of 40 days, which is divided into 2 (two) waves.

b. Objective criteria

(1) First Wave is the stage or stages of a flow pilgrimage Hajj journey, which briefly described as follows: Homeland in (Indonesia) - Vehicles (Aircraft) - Holy Land (Saudi Arabia): Saudi Arabia Airport / Jeddah - Vehicles (Bus) - Madinah - Vehicle (Bus) - Makkah - Vehicle (Bus) - Arafat - Vehicle (Bus) - Muzdalifah - Vehicle (Bus) - Mina - Vehicle (Bus) - Makkah - Vehicle (Bus) - Jeddah - Vehicles (Aircraft) - Homeland (Indonesia)

(2) Second Wave is the stage or stages of a flow pilgrimage Hajj journey, which briefly described as follows: Homeland (Indonesia) - Vehicles (Aircraft) - Holy Land (Saudi Arabia): Saudi Arabia Airport / Jeddah - Vehicles (Bus) - Makkah - Vehicle (Bus) - Arafat - Vehicle (Bus) - Muzdalifah - Vehicle (Bus) - Mina - Vehicle (Bus) - Makkah - Vehicle (Bus) - Madinah - Vehicle (Bus) - Jeddah - Vehicles (Aircraft) - Homeland (Indonesia).

c. Measurement scales: nominal.

2.8 Research Approval

Approval recommendation of research conduct issued by the Health Research Ethics Committee of Faculty of Medicine, Hasanuddin University (No. : 01003/H4.8.5.31/PP36-KOMETIK/2012).

III. RESULTS AND DISCUSSION

In general, the study results of the data obtained Indonesian pilgrims who died in 2011 (abbreviated: Pilgrims Died, 2011) as many as 531 people (0.26%) of the total

Indonesian pilgrims in 2011(abbreviated: Jamaah 2011) as many as202 343 people. If the analogy Pilgrims Died 2011, the number of the number of passenger transport air craft Jemaah 2011, it is relatively equal to 1(one) group of fly (Kloter).

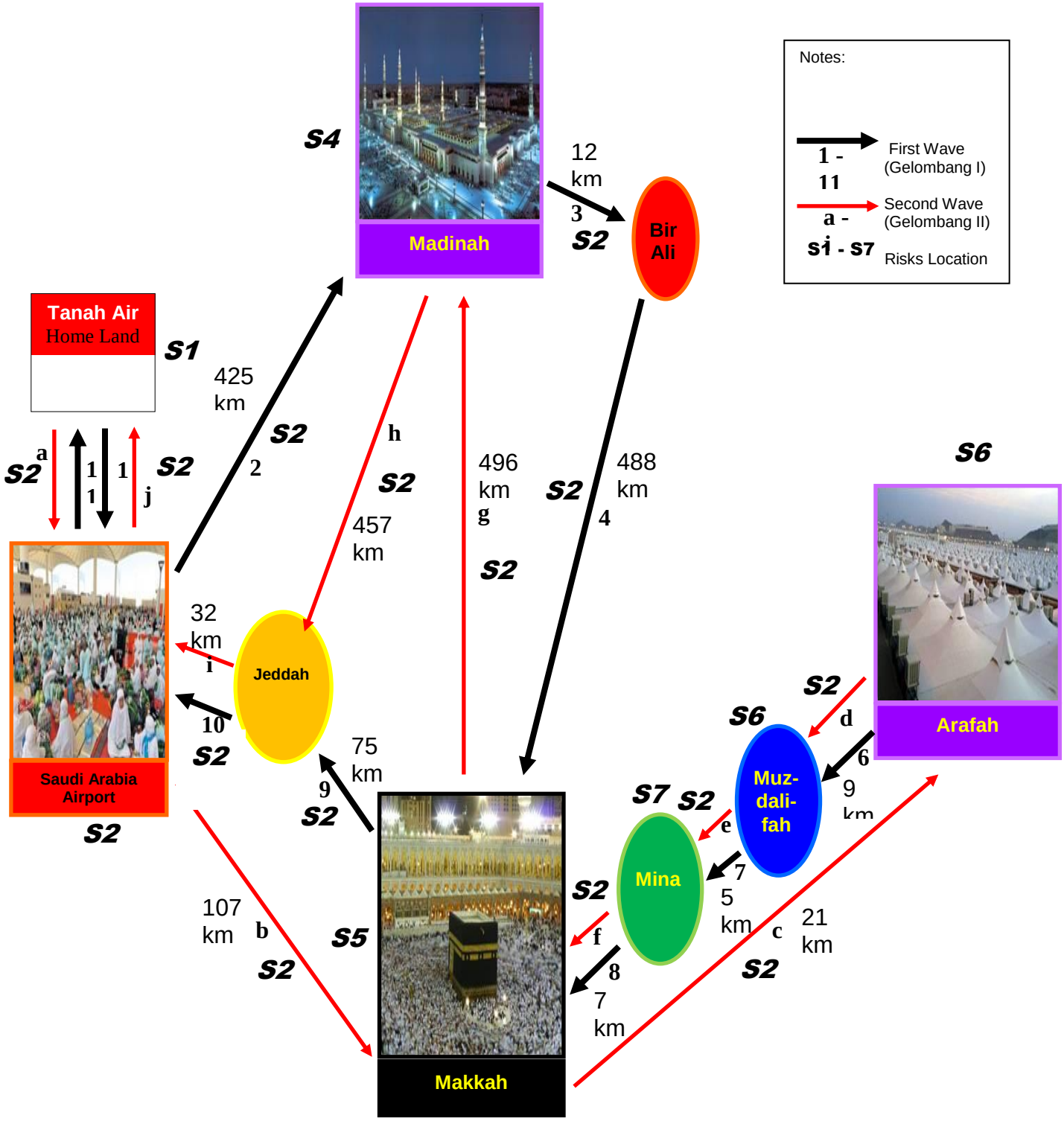

Table 1. Distribution of dead hajj jamaah by Sex in 2011

Sex	n	%
Male	347 persons	(65,3%)
Female	184 persons	(34,7%)
Total	531 persons	(100%)

The number of Jamaah Died in 2011 by sex, are: Men more than women, that is 347 people (65.3%).

Table 2. Distribution of dead hajj jamaah by age group in 2011

Sex	Age group	
	age ≥60	age <60
Male	261 persons (67,8%)	86 persons (58,9%)
Female	124 persons (32,2%)	60 persons (41,1%)
Total	385 persons (100%)	146 persons (100%)

The number of Jamaah Died in 2011by Age Group, were: age >60morethan the age <60, ie, 385 people (72.5%). If the data in the two tables are combined, it will look like the following.

Table 3. Distribution of dead hajj jamaah by sex and age group in 2011

Age group	N	%
≥60 year	385 persons	(72,5%)
<60 year	146 persons	(27,5%)
Total	531 persons	(100%)

It is concluded that the number of Jamaah Died 2011 by Sex and Age Group, are: Men > 60 more than the Male Age < 60 (67.8%) and women < 60 more than the Female Age > 60 (41.1 %).

Then, the data shown in the results of research on the Pilgrims Died in 2011 according to Risk Node (abbreviated : Node) as follows.

Table 4. Distribution of dead hajj jamaah by node in 2011

Node	n	%
Homeland (Indonesia)(*S1*)	22 persons	(4,1%)
Vehicle (*S2*)	10 persons	(1,9%)
Arab Saudi/Jeddah (*S3*)	29 persons	(5,5%)
Madinah (*S4*)	65 persons	(12,2%)
Makkah (*S5*)	373 persons	(70,2%)
Arafah – Muzdalifah (*S6*)	6 persons	(1,1%)
Mina (*S7*)	26 persons	(4,9%)
Total	531 persons	(100%)

It can be concluded that the number of Jamaah Deceased 2011 according node, is: Makkah Node(S5) more than the other nodes, ie, 373 people (70.2%), followed by Madinah Node (S4) as many as 65 people (12.2%); later: These nodes Saudi Arabia / Jeddah (S3) as many as 29 people (5.5%), Mina Node (S7) as many as 26 people (4.9%), and Homeland Node (S1) as many as 22 people (4.1%).Next, research the data displayed on the Jamaah Deceased 2011 according to the Hajj Procession Period (abbreviated: Period).

Table 5. Distribution of dead hajj jamaah by period in2011

Period	n	%
Pre-Armina*(P1)*	122	(23,0%)
Armina*(P2)*	74	(13,9%)
Post-Armina*(P3)*	335	(63,1%)
Total	531	(100%)

The number of Jamaah Deceased in 2011 according to period, are: Post-Armina Period (P3) more than any other periods ie, 335 people (63.1%), followed by Pre-Armina Period (P1) as many as 122 people (23.0 %) and Armina Period (P2) as many as74 people (13.9%). When the two tables of data are combined, it will look like this.

Table 6. Distribution of dead hajj jamaah by period and node in 2011

Node	Period					
	Pre-Armina(*P1*)		Armina(*P2*)		Post-Armina(*P3*)	
	N	%	n	%	n	%
Homeland (Indonesia) (*S1*)	10 persons	(8,2%)	0 person	(0%)	12 persons	(3,6%)
Vehicle (*S2*)	0 person	(0%)	3 persons	(4,1%)	7 persons	(2,1%)
Arab Saudi/Jeddah (*S3*)	5 persons	(4,1%)	0 person	(0%)	24 persons	(7,2%)
Madinah (*S4*)	25 persons	(20,5%)	0 person	(0%)	40 persons	(11,9%)
Makkah (*S5*)	82 persons	(67,2%)	39 persons	(52,7%)	252 persons	(75,2%)
Arafah – Muzdalifah (*S6*)	0 person	(0%)	6 persons	(8,1%)	0 person	(0%)
Mina (*S7*)	0 person	(0%)	26 persons	(35,1%)	0 person	(0%)
Total	122 persons	(100%)	74 persons	(100%)	335 persons	(100%)

It can be seen that the number of Jamaah Deceased 2011 according to period, are: Period and the Post-Armina Makkah Node (P3-S5) more than the period and other nodes, ie, 252 of 335 men (75.2%). Furthermore, it is shown on the hajj Jamaah Deceased 2011 according to the Jamaah Wave . on the following table

Table 7. Distribution of dead hajj jamaah by waves in 2011

Jamaah Wave	n	%
First (*G1*)	286 persons	(53,9%)
Second (*G2*)	245 persons	(46,1%)
Total	531 persons	(100%)

It can be concluded that the number of Jamaah Deceased 2011 according to Wave, are: First Wave (G1) more than the Second Wave (G2), ie, 286 people (53%).

Then, when the data in the table above three combined, the Pilgrims Died 2011 according Waves, Period, and the Node, it will look as follows.

Table 8. Distribution of dead hajj jamaah by wave, period and node in 2011.

Node	Period					
	Pra-Armina (*P1*)		Armina (*P2*)		Pasca-Armina (*P3*)	
	First (*G1*)	Second (*G2*)	First (*G1*)	Second (*G2*)	First (*G1*)	Second (*G2*)
Home (Indonesia) (*S1*)	4 (4,6%)	6 (17,1%)	0 (0%)	0 (0%)	9 (5,7%)	3 (1,7%)
Vehicle (*S2*)	0 (0%)	0 (0%)	2 (4,8%)	1 (3,1%)	5 (3,2%)	2 (1,1%)
Airport in Saudi Arabia /Jeddah (*S3*)	1 (1,1%)	4 (11,4%)	0 (0%)	0 (0%)	15 (9,6%)	9 (5,1%)
Madinah (*S4*)	24 (27,6%)	1 (2,9%)	0 (0%)	0 (0%)	7 (4,5%)	33 (18,5%)
Makkah (*S5*)	58 (66,7%)	24 (68,6%)	22 (52,4%)	17 (53,1%)	121 (77,1%)	131 (73,6%)
Arafah – Muzdalifah (*S6*)	0 (0%)	0 (0%)	4 (9,5%)	2 (6,2%)	0 (0%)	0 (0%)
Mina (*S7*)	0 (0%)	0 (0%)	14 (33,3%)	12 (37,5%)	0 (0%)	0 (0%)
Total	87 (100%)	35 (100%)	42 (100%)	32 (100%)	157 (100%)	178 (100%)

Result on table shows that the amount of Jamaah Died 2011 according to the Waves, Period, and the Node, is: The Second Wave, Post-Period Armina, and Makkah Node (G2-P3-S5) more than the Waves, Period, and other nodes, ie, 131 of 178 people (73.6%). After all the research data presented in quantitative, the data then shown the results in a qualitative study of the central issues of this research problem as revealed below. Some informants gave explanations in line with experience and observations as Officer Hajj Indonesia mainly officers kloter / TKHI that directly interact and communicate with the Jamaah, which should only be limited in Charge and responsible for the Pilgrims of the accompanied fly group (Kloter), but in reality, sometimes should and required to provide services and medical aid to Pilgrims and actions of other Kloter.

IV. CONCLUSION

The amount of the Jamaah who died in 2011 according to the Wave, Period, and Node, is concluded as follow: The Second Wave, Post –Period Armina, and Makkah Node (*G2-P3-S5*) was higher than the Waves, Period, and other Nodes, ie, 131 of 178 people (73.6 %). After all research data collected, we can conclude the amount of Jamaah Died in 2011 According Waves, Period, and the Node: The Second Wave, Post-Period Armina, and Node Makkah (G2 - P3 - S5) was higher than the other Waves , Period, and nodes with131 of 178 people (73.6%), respectively.

Result in a qualitative study relate to the central issues of this research revealed that some informants gave explanations in line with experience and observations as Officer Hajj Indonesia (PHI) mainly officers kloter / TKHI that directly interact and communicate with the Jamaah, roommates should only be limited in charge and responsible for the Pilgrims of the roommate fleet, but in reality, they should sometimes required to provide services and medical aid to the Pilgrims and actions of other groups.

Then, in the city of Makkah pilgrim-mage season potentially very high risk of death. Internal risk factors be accompanied by lethargy, exhausted body weight, and mental stress, including culture shock assumed to play a role in the deaths, especially Jamaah in Makkah Node, while the other internal factor influence was the bad for health the congregation, and also exacer-bated by conditions of exposure to external risk factors (FRE).This is proved by the results of data analysis Jamaah Died 2011, number of deaths in Makkah Node (S5) is much higher than other nodes (70.2 %).

Post-hajj period or Post-Armina Period potentially high risk of mortality. Internal risk factors such as lethargy, exhausted body weight, and mental stress, including the culture shock is assumed to play a role in the death of the Jamaah-Armina. Post this period, while others was polluted air influences as bad for health congregation, and also exacerbated by conditions of exposure to external risk factors.

This is proved by the results of the data analysis Jamaah Died 2011, namely: the number of deaths in the Post-Armina Period far higher more than the period of Pre- Armina (63.1 %),

with in Makkah Node (S5) 3 times as much and in the Madinah Node (S4) 1.6 times more than in the other node.

Pilgrims in first and second waves have potential risk of death which is almost comparable. Internal risk factors be accompanied by lethargy, exhausted body weight, and mental stress, including the culture shock is assumed to play a role in the death of the second wave of the Pilgrims. The analysis of the Jamaah Died 2011, namely: The Second Wave Jamaah mortality was slightly higher than the First Wave (3.05 ‰ : 2.34 ‰).

ACKNOWLEDGEMENT

Authors highly appreciate and would like to thank the Pusdatin– Kemenkes RI who have given a very kind cooperation during the research commencement. Hence, we thank to Puskeshaji–Kemenkes RI for their assistance during data collection. Appreciation also goes to the Medical Faculty Hasanuddin University, Makassar that has issued the ethical clearance support within this research.

REFERENCES

[1] Achmadi, UF. 2005. Manajemen Penyakit Berbasis Wilayah. Penerbit Buku Kompas, Jakarta.

[2] Achmadi, UF. 2010. Manajemen Risiko Kesehatan Hajj. Modul Pelatihan Kesehatan Hajj bagi Petugas Hajj. Jakarta.

[3] Achmadi, UF. 2012. Manajemen Penyakit Berbasis Wilayah. Edisi Revisi. PT RajaGrafindo Persada, Jakarta.

[4] Ahmed, Qanta A.; Arabi, Yaseen M.; Memish, Ziad A. 2006. Health risks at the Hajj (online) The Lancet Volume 367, Issue 9515, 25–31 March 2006, Pages 1008–1015 (http://www.sciencedirect.com/science/article/pii/S0140673606684298, diakses 1 Mei 2013)

[5] Al-Asmary, Saeed et al. 2007. Acute Respiratory Tract Infections among Hajj Medical Mission Personnel, Saudi Arabia (online) International Journal of Infectious Diseases (2007) 11, 268—272

[6] Departemen Kesehatan RI. 1999. Undang-Undang Nomor 23 Tahun 1998 tentang Kesehatan. Jakarta

[7] Departemen Kesehatan RI. 2000. Instruksi Dirjen PPM & PLP NO. HK.00.06.5.233 tentang Petunjuk Pelaksanaan Pemeriksaan dan Pembinaan Kesehatan Calon Hajj, Edisi IX. Jakarta.

[8] Departemen Kesehatan RI. 2002. Keputusan Menteri Kesehatan Republik Indonesia Nomor 1394 /MENKES/SK/XI/2002 tentang Pedoman Penyelenggaraan Kesehatan Hajj Indonesia. Jakarta.

[9] Dirjen PP & PL Depkes RI. 2005. The International Classification Disease – Tenth Revision (ICD – X). Jakarta

[10] Ibrahim, Nahla K.R. 2008. Epidemiological Pattern of Diseases and Risk Behaviors of Pilgrims Attending Mina Hospitals, Hajj 1427 H (2007 G) (online) Journal Egypt Public Health Association, 83: 15-33 (http://www.epha.eg.net/pdf/n1-2-2008/2-Epidemiological_profile_final.pdf, diakses 13 April 2013)

[11] Kementerian Kesehatan RI. 2010. Pelatihan Petugas Kesehatan Jamaah Hajj. Badan Pengembangan dan Pemberdayaan Sumber Daya Kesehatan, Jakarta

[12] Kementerian Kesehatan RI. 2011. Pedoman Teknis Pembinaan Kesehat-an Jemaah Hajj. Jakarta.

[13] Kementerian Kesehatan RI. 2011. Pedoman Teknis Pemerilksaan Kesehatan Jemaah Hajj. Sekretariat Jenderal, Jakarta

[14] Kementerian Kesehatan RI. 2011. Profil Kesehatan Hajj Indonesia Tahun 2011. Pusat Data & Informasi (Pusdatin). Jakarta

[15] Khan, Nasim A. et al. 2006. Pattern of Medical Diseases and Determinants of Prognosis of Hospitalization during 2005 Muslim Pilgrimage (Hajj) in a Tertiary Care Hospital – A Prospective Cohort Study (online) Saudi Medical Journal 2006; Vol. 27 (9): 1373-1380 (http://ipac.kacst.edu.sa/eDoc/2006/159563_1.pdf, diakses 1 Mei 2013)

[16] Kusnanto, H. 2000. Metode Kualitatif dan Riset Kesehatan, Aditya Media. Yogyakarta.

[17] Murti, B.1997. Prinsip dan Metode Riset Epidemiologi. Yogyakarta: UGM Press.

[18] Noor, N.N. 2002. Epidemiologi. Lembaga Penerbitan Universitas Hasanuddin, Makassar.

[19] Notoatmodjo, S. 2005. Metodologi Penelitian Kesehatan. Jakarta: Rineka Cipta.

[20] Pane, M. 2007. Determinan Kematian Jemaah Haji di Atas Usia 40 Tahun Tahun 1427H, Disertasi, Fakultas Kesehatan Masyarakat Universitas Indonesia. Jakarta.

[21] Puskeshaji (Pusat Kesehatan Haji). 2011. Pedoman Manasik Kesehatan Hajj, Jakarta.

[22] Sudjatmoko, A. 2006. Hubungan Antara Kegiatan Hajj Kloter 92 Surabaya dengan Kejadian Depresi di Makkah – Madinah, 2004. Jurnal Kedokteran Indonesia Medika. No. 05 Tahun XXXII, Mei 2006.

[23] WHO (Worl Health Organization). 2003. Diet, Nutrition and Prevention Diseases. Geneva.

[24] ZA Memish. 2010. The Hajj: Communicable and Non-communicable Health Hazards and Current Guidance for Pilgrims (online) Euro Surveillance, 15(39):pii=19671 (http://eurosurveillance.org/images/dynamic/EE/V15N39/art19671.pdf, diakses 13 April 2013)

AUTHORS

First Author – Herry Darsim Gaffar; Postgradute Program, Medical Faculty, Hasanuddin University, Makassar, Indonesia
Second Author – Umar Fahmi Achmadi; Professor of Faculty of Public Health, Indonesia University, Jakarta, Indonesia
Third Author – Medical Faculty, Hasanuddin University, Makassar Indonesia
Fourth Author – Medical Faculty, Hasanuddin University, Makassar Indonesia

Correspondence Author – Herry Darsim Gaffar
Email address: herry_darsim@yahoo.com