



The Relationship Between Flight Hours Duration And Menstruation Disturbances In Flight Attendant

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ABSTRACT

A Flight attendant has a higher risk of menstrual disturbances than a non-flight crew. Moreover, a flight attendant has high work pressure with flight duration of 225 hours (3 months) which will cause work stress and menstrual disturbance. The purpose of this study was to find out the relationship between flight hours and menstrual disturbances in flight attendants. This research method is quantitative study with a cross-sectional approach and was carried out to 51 respondents. The sampling technique used was total sampling, while the data collection used interview guidelines. In addition, the data analysis used Chi-Square. The results of the study were based on the Chi-Square test of flight attendants with flying hours 225 hours in the last 3 months. There were 28 respondents (96.6%) who experienced menstrual disturbances, while there was 1 respondent (3.4%) who did not experience menstrual disturbances. The obtained P value was 0.000 which meant the P value was < 0.05, while the Odd Ratio (OR) was 40,444, so it can be concluded that there was a significant relationship between flight hour duration and menstrual disturbances among the flight attendants at Mess Kanya Sena 2, Jakarta

Keywords : *Flight hour Duration, Menstrual Disturbances.*

INTRODUCTION

Menstruation normally occurs within 22-35 days. Disorders in the menstruation generally occurs in the early period and the final period of the reproductive period, namely under the age of 19 years and above the age of 39 years. Disorders that occur can be related to the menstrual cycle, the duration of the menstrual cycle, and the amount of bleeding that occurs during the menstrual phase. (Banjarnahor, 2013; Nani et al., 2017). The predominance of female teenagers experiences discomfort before and during menstruation, this has an impact on disrupting their daily activities and requiring time to rest (Rasyid, 2021).

Menstrual disorders are gynecological problems that can occur before or after menstruation, including premenstrual syndrome, dysmenorrhea, polymenorrhea (menstrual cycle that lasts less than 21 days), oligomenorrhea (menstrual cycle that lasts more than 35 days), amenorrhea (the absence of menstruation for 3 months or more), menorrhagia (excessive blood volume and long duration) and, metrorraghia (irregular bleeding). These menstrual disorders can have impacts on the function of the reproductive system which is associated with the increased risk of various diseases such as uterine cancer, breast cancer, and cardiovascular disorders

that can cause the difficulty in having a child or infertility (Gudmundsdottir et al., 2011).

Factors that influence the irregularity of menstrual cycle are hormonal level, the nervous system, changes in vascularization, nutritional intake, and psychology (Benson, 2009). In addition, other factors in irregularity of menstrual cycle occur due to environmental factors such as exposure which includes cosmic radiation or radiation that occurs due to heat emission, light emission, x-ray, disruption of circadian rhythm, flying across various time zones, working beyond normal time, Exposure to noise from factories, and high work intensity (Grajewski et al., 2003; Waters et al., 2000)

One of the professions that can experience menstrual disorders is a flight attendant. Flight attendant is a profession that requires optimal health to maintain the safety of passengers. The average flight duration for a flight attendant with other cabin crew is around 9 hours per day and the maximum limit of working hour (duty time or flight duty time) for all cabin crew is 14 hours of work per day. Generally in 1 week a flight attendant flies 3 times. Accordingly, the average of flying hour is 30 hours/week, 110 hours/month, 225

hours/3 months, and 1,050 hours/year (Hutaganol, 2020).

A flight attendant who works beyond the flight duty time can result in menstrual disorders that interfere with the performance of the flight attendant in carrying out the work. Moreover, the other problems are the exposure to cosmic radiation, disruption of circadian rhythms or flying across multiple time zones, and working beyond the normal hours that interferes with the time for rest and sleep. These problems may affect the reproductive system such as problems with the menstrual cycle, and it may interfere with the performance of a flight attendant in carrying out the work that then can affect flight safety (Aspholm et al., 1999; Grajewski et al., 2015)

Flight attendants at Mess Kanya Sena 2 Jakarta are VIP flight attendants who serve flights for state officials. Therefore, VVIP/VIP TNI AU flight attendants must be equipped with various knowledge and skills through standardization training not only about serving and maintaining the safety of passengers, but also about the irregular flight hours, physical demands, and the massive mental burden. (Marshal TNI (retired) Oetomo (1989).

In addition, as a flight attendant, there are unique problems related to exposure to the

work. A flight attendant is consistently exposed to cosmic radiation, ionic radiation, and circadian rhythm disturbance (working beyond normal hours that interfere with the time to rest and sleep). Therefore, this can affect reproductive hormones that if FSH (Follicle Stimulating Hormone) and LH (Luteinizing Hormone) are disrupted, it will affect the production of estrogen and progesterone which can cause the menstrual disorders (Baker & Driver, 2007).

The prevalence of menstrual disorders in the flight attendant group is much higher than in the ground service group. This study scopes the flights in the last three months that the flight hour is more than 14 hours. Generally, in 1 week a flight attendant flies 3 times with an average of 30 hours/week, 110 hours/month, 225 hours/3 months and 1,050 hours/year. The state of jet lag or shift lag due to shift work which disrupts the sleep cycle and dysfunction of the hypothalamus-pituitary-ovarian axis which increases the prostaglandin hormone caused by a decrease in the estrogen hormone and progesterone hormone can affect menstrual disorders (Diklatnasa, 2020).

According to a preliminary study conducted toward 25 flight attendants with different lengths of duty, there were 10

flight attendants (40.0%) experienced irregular menstruation, and 16 flight attendants (64.0%) experienced dysmenorrhea.

Therefore, based on the facts mentioned, this study aims to find out the relationship between the flight hour duration and the menstrual disorders among flight attendants at Mess Kanya Sena 2 Jakarta in 2022.

METHOD

This quantitative analytic research is conducted at Mess Kanya Sena 2 Jakarta from January to March 2022 toward 51 flight attendants. It applies a total sampling technique through structured interviews that the interviews are carried out by distributing online interview guidelines to collect the data on the flight hour duration and menstrual disorders in flight attendants. This research is in the form of ordinal data so that the Chi-Square correlation test is used to test the relationship or influence between the variables of this study

RESULTS AND DISCUSSION

Respondent criteria in this study can be described as follows:

Table 1 Frequency distribution of age, stress level, and BMI of flight attendants at Mess Kanya Sena 2 Jakarta, January - March 2022

Age	(f)	Percentage (%)
18-25 years	40	78,4
26-45 years	11	21,6
Total	51	100

Stress Level	(f)	Percentage (%)
Normal	13	25,5
Mild	18	35,5
Moderate	15	29,4
Heavy	5	9,8
Total	51	100

Body Mass Index (BMI)	(f)	Percentage (%)
Appropriate	50	98,0
Inappropriate	1	2,0
Total	51	100

The table 1 shows that the majority of age between 18 years - 25 years is 40 respondents (78.4%). Moreover, 18 respondents (35.5%) experience mild level of stress, and 50 respondents (98.0%) have appropriate or normal body mass index

Table 2 Frequency distribution of flight hour duration of flight attendants at Mess Kanya Sena 2 Jakarta, January - March 2022

flight hour duration	Frequency (f)	Percentage (%)
≥ 225 hours/ 3 Months	29	56,9
< 225 hours/3 Months	22	43,1
Total	51	100

Based on the table 2, there are 29 respondents (56.9%) who have flight hour duration ≥ 225 hours/last 3 months.

Table 3 Frequency distribution of Menstrual disorders of flight attendants at Mess Kanya Sena 2 Jakarta, January - March 2022

Menstrual disorders	Frequency (f)	Percentage (%)
With disorders	37	72,5
Without disorders	14	27,5
Total	51	100

The table 3 shows that 37 respondents (72,5%) experience menstrual disorders which the disorders are amenorrhea and menorargia.

Tabel 4 Relationship Between Flight Hours Duration And Menstruation Disturbances In Flight Attendant At Mess Kanya 2 Jakarta periode Januari – Maret tahun 2022.

Durasi Jam Terbang	Menstrual disorders				Pvalue	OR
	R		IR			
	f	%	F	%		
≥ 225 hours	28	96,6	1	3,4	0,000	40,4
< 225 hours	1	40.9	13	59,1		

Note : R : Regular, IR : Irregular

Based on the table 4, the flight attendants with the flight hours ≥ 225 hours/ 3 months who experience the menstrual disorders are 28 flight attendants (96,6%), while there is 1 flight attendant (3,4%) who does not experience the menstrual disorders. On the other hand, the flight attendants with the flight hours < 225

hours/ 3 months who experience the menstrual disorders are 9 flight attendants (40,9%), while there are 13 flight attendants (59,1%) who do not experience the menstrual disorders. Based on the result of chi square test there is a significant relationship between flight hour duration hour and menstrual disorders among the flight attendants at Mess Kanya Sena 2, Jakarta. The Odd Ratio (OR) is 40,444. All respondents with flight hour duration > 225 hours/ 3 months has risk of menstrual disorders 40.444 times than respondents with flight hour duration < 225 hours/ 3 months.

DISCUSSION

1. Flight Duration

The results of the research shows that most of the flight attendants had flight hours ≥ 225 hours/3 months, as many as 29 respondents (56.9%). The flight duration of flight attendants, on average, with other cabin crew is around 9 hours per day and the maximum limit of working hours (duty time or flight duty time) for all cabin crew is 14 hours of work per day. In general, in 1 week flight attendants fly 3 times on average -flying average 30 hours/week, 110 hours/month 225 hours/3 months and 1,050 hours/year. Whereas the flight attendant's rest schedule is an integral part of working hours or flying hours so that

the schedule is adjusted (hutanganol, 2020). Therefore, it doesn't mean that all flight attendants will be scheduled for maximum or close to minimum every day because there are some of the times when the service only flies short distances but there are also times when it flies long distances. On the other hand, working hours may be exceeded due to special conditions during the implementation, for example due to bad weather on a flight. It is forced to divert landings which of course will increase flying hours and working hours. Then compensation will be given, especially regarding rest hours before carrying out the next service schedule. (Hutaganol, 2020).

According to the result of the Health Science Journal of Indonesia in 2015, it was revealed that cabin crew who exceed the maximum flight duration limit will lose the sleeping time, and additional flight hours for off-schedule will increase the risk of fatigue among civil flight on short-flights in Indonesia. The higher the mental workload, the higher the tendency to depression. In addition, flight attendants with long-distance flights in the last 3 months, and aged 19-24 years have a higher risk of menstrual disturbances resulting in impaired work performance (Nuning, Awal, and Yuli, 2015).

Based on Darmadi's research, borderline results on work stressors ($p=0.207$) and

flying hours are more or equal to 225 hours ($p=0.235$) on menstrual duration disturbances in 100 flight attendants, so this study examined the relationship between menstrual duration disturbances and work stress on civilian flight attendants in Indonesia. In addition, it is also wants to know the other factors that increase the risk of disruption of menstrual duration in civilian flight attendants in Indonesia. (Darmadi 2003)

So that, the researchers concluded that subjects with this type of flight with a flight duration of ≥ 225 hours per last 3 months are prone to experiencing menstrual disorders due to lack of sleep or past bedtime due to very busy activities and being vulnerable to exposure to cosmic radiation which is harmful to health.

2. Menstrual disturbances

The results obtained from all 50 respondents, some of them were not disturbed by menstruation as many as 14 respondents (27.5%) and most of the menstruation was disturbed as many as 37 respondents (72.5%). Menstrual disturbances are abnormal menstrual bleeding in terms of the length of the menstrual cycle, the length of menstruation, and the amount of menstrual blood which involves the hypothalamus,

pituitary, ovaries and endometrium (Prawiharjo, 2011).

Menstrual disturbance is a gynecological problem that may occur before and after menstruation period, including premenstrual syndrome, dysmenorrhea, polymenorrhea or menstrual cycles of less than 21 days, oligomenorrhea or menstrual cycles of more than 35 days, amenorrhea or no menstruation for 3 months or more, menorrhagia or a lot of blood volume and a long duration and metrorrhagia, and the last irregular bleeding. This will have an impact on the function of the reproductive system which is associated with an increasing risk of various diseases such as uterine and breast cancer, cardiovascular disorders and the possibility to be difficult to get children or infertile (Gudmundsdottir et al, 2011).

Also, menstrual disturbances can be caused by several influencing factors, for example, the exposure to the work environment of flight attendants such as cosmic radiation and circadian rhythm disturbances or flying across various time zones and working past normal time hours for rest and sleep which can affect reproductive hormones. The factory noise exposure and high intensity of work are also associated with the regularity of the menstrual cycle. Another factor of menstrual disorders is work stress. It is a psychological disorder that results in

menstrual disorders, one of the psychological factors is stress which is a physiological, psychological response from humans who try to adapt and regulate both internal and external pressures. Stress and psychological pressure have a big role in causing menstrual disturbances (Wangsa, 2013).

Bad sleep patterns can interfere with health for the body such as physiological and psychological health disorders (Yulianingsih, 2020). The impact of physiological disorders is a decrease in daily activities which results fatigue, weakness and weakness. This condition can cause a decrease in body resistance and cause instability in vital sign (Saleh, 2021). Physical activity is a movement of the body that increases the expenditure of energy and the burning of energy, so that menstrual disturbances are influenced by physical activity, very dense activities can also cause menstrual disturbances. The habit of exercising and sleeping regularly is actually very beneficial because it can relieve or prevent menstrual disturbances. (Wangsa, 2013).

This is in line with research conducted in 2021 in North Sumatra. It is said that out of 75 respondents, 54 respondents (72.0%) had normal menstruation, while the research in West Sumatra showed that out of 89 respondents who had abnormality of menstrual cycles as many as 60

respondents (67.4%). Nevertheless, it is concluded that most of the respondents had menstrual cycle disorders caused by stress, flight duration, strenuous activities, work demands and body weight.

3. The relationship between flying duration and menstrual disturbance

Based on the results, it can be explained that flight attendants with flight hours ≥ 225 hours in the last 3 months had disturbed menstruation as many as 28 flight attendants (96.6%) and only 1 flight attendant (3.4%) had uninterrupted menstruation. While flight attendants with flying hours < 225 hours in the last 3 months as many as 9 flight attendants (40.9%) had disrupted menstruation and 13 flight attendants (59.1%) had uninterrupted menstruation. Based chi square test results there is a significant relationship between flying duration with menstrual disorders on flight attendants at Mess Kanya Sena 2 Jakarta. The Odds Ratio value is 40,444. All respondents whose flight duration was > 225 hours/last 3 months were at risk or had the opportunity to get 12 menstrual disorders by 40,444 times compared to respondents who flew < 225 hours.

Flight attendants who had flight hours > 225 hours in the last three months will experience menstrual disturbances. They are related to sleep cycles which may be

disrupted due to jet lag caused by long-distance flights or shifting lag in the work environment. This will cause the release of the hormone cortisol which is regulated by the hypothalamus of the brain and the pituitary gland, with the start of hypothalamic activity, the pituitary secretes the hormone FSH (Follicle Stimulating Hormone) and stimulates the ovaries and produces estrogen. If there is a disturbance in the hormones FSH (Follicle Stimulating Hormone) and LH (Lutenizing Hormone), it will affect the production of estrogen and progesterone which causes menstrual cycle irregularities.

Furthermore, the research also records that civil female flight attendants with long-haul flights within three months compared to short-haul flights had a 69% statistically significant higher risk of experiencing menstrual duration disturbances.

The results of this research support the hypothesis that there is a relationship between the flight duration flight and the menstrual cycle of flight attendants at Mess Kanya Sena 2 Jakarta for the period January - March 2022.

CONCLUSION

The conclusions of the result can be drawn: Some respondents had an average flight duration of ≥ 225 hours/ 3 months as many as 27 respondents (52.9%). Most of the respondents had disrupted

menstruation as many as 37 respondents (72.5%). There was a significant relationship between the flying duration and menstrual disorders in flight attendants at Mess Kanya Sena 2 Jakarta for the period January - March 2022. The results of the chi square test shows that the P Value which shows $p = 0.000$ which means the P Value < 0.05 .

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