



HEALTH PROFILE OF INDUSTRIAL FEMALE WORKERS AND THEIR REPRODUCTIVE HEALTH RISK IN BEKASI DISTRICT, INDONESIA

Profil Kesehatan Pekerja Perempuan Industri Dan Risiko Kesehatan Reproduksi Di Kabupaten Bekasi, Indonesia

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Abstrak

Latar Belakang: Kesakitan dan kematian ibu dan anak masih menjadi masalah di Indonesia. Berdasarkan pendekatan siklus kehidupan, upaya perbaikan perlu dilakukan sebelum kehamilan, yang artinya menargetkan wanita usia subur. Salah satu kelompok wanita usia subur yang memerlukan perhatian adalah pekerja perempuan di industri. Penting untuk mengetahui profil kesehatan dan risiko kesehatan reproduksi yang mungkin dimilikinya.

Tujuan: Untuk menggambarkan profil kesehatan pekerja perempuan di industri dan risiko kesehatan reproduksinya di Kabupaten Bekasi, Indonesia.

Metode: Penelitian ini menggunakan desain studi cross sectional dan melibatkan 386 pekerja perempuan di industri yang bertempat tinggal di Kabupaten Bekasi sebagai responden. Pengumpulan data dilakukan selama bulan November 2021. Responden diwawancarai dengan menggunakan kuesioner. Pada responden dilakukan pengukuran indeks massa tubuh, total body fat, visceral fat, tekanan darah, dan gula darah sewaktu. Data dianalisis dengan menggunakan analisis univariat.

Hasil: Responden yang dikategorikan obese (kegemukan) berdasarkan indeks massa tubuh (52.8%), total body fat (72%), dan visceral fat (9.8%). Hasil juga menunjukkan bahwa 11.9% responden suspek hipertensi berdasarkan pengukuran tekanan darah sistolik, sementara 26.9% responden suspek hipertensi berdasarkan pengukuran tekanan darah diastolik. Responden yang memiliki risiko potensial untuk menderita diabetes mellitus adalah 2.3%. Sebanyak 10.4% responden menderita anemia. Ditemukan bahwa 88.3% responden dapat memiliki risiko kesehatan reproduksi selama kehamilan, persalinan, dan kemungkinan memiliki bayi stunting karena profil kesehatan yang mereka.

Kesimpulan: Profil kesehatan pekerja perempuan di industri menunjukkan bahwa mereka memiliki risiko obesitas, diabetes mellitus, hipertensi, dan anemia. Profil kesehatan ini telah menempatkan mereka untuk memiliki risiko kesehatan reproduksi, khususnya terkait kehamilan dan persalinan. Mereka juga memiliki risiko untuk melahirkan bayi stunting sebagai outcome kehamilan.

Kata Kunci: Pekerja perempuan, Profil kesehatan, industri, Indonesia, risiko kesehatan reproduksi

Abstract

Background: Maternal and child morbidity and mortality remains problems in Indonesia. Based on the life cycle approach, the improvement should be done before the pregnancy which means the target is women of reproductive age. One group of women of reproductive age that needs attention is industrial female workers. It is crucial to know their health profile and reproductive health risk they may have.

Objective: To describe the health profile of industrial female workers and their reproductive health risk in Bekasi District, Indonesia.

Method: This study used cross-sectional study design and involved 386 industrial female workers who live in Bekasi District as respondents. The data collection was carried out in November 2021. The respondents were interviewed using a questionnaire. Body mass index, total body fat, visceral fat, blood pressure, and random blood sugar of respondents were measured. The data were analyzed using univariate analysis.

Result: The respondent who categorized as obese based on the measurement of body mass index (52.8%), total body fat (72%), and visceral fat (9.8%). The result also revealed that 11.9% of respondents were suspected of hypertension based on systole blood pressure measurement, while the other 26.9% were suspected of hypertension according to diastole blood pressure measurement. The respondents who had a potential risk to get diabetes mellitus was 2.3%. Of 10.4% of respondents were anemia. It was found that 88.3 % of respondents

may have reproductive health risks during pregnancy, delivery, and have stunted babies because of their health profiles.

Conclusion: The health profile of industrial female workers in this study indicates that they have a risk to obesity, diabetes mellitus, hypertension, and anemia. This health profile places them having reproductive health risks, especially related to pregnancy and delivery. They also have a risk to have stunted babies for their pregnancy outcome.

Keywords:-Female workers, health profile, industrial, Indonesia, reproductive health risk,

INTRODUCTION

The maternal mortality rate (MMR) and infant mortality rate (IMR) in Indonesia are considered high. The government has the target to reduce the MMR to 70/100,000 live births and IMR to 12/1,000 live births which are in line with the target of Sustainable Development Goals in 2030¹. Indonesia also focuses to decrease stunting from 27.6% to 14% in 2024². The mortality and morbidity problems such as stunting are closely related to the health status of women of reproductive age. Based on the life cycle approach, we need to pay attention to women's health before their pregnancy period to solve the problem.

In this industrial era, more women are working since the opportunity and the economic demand for family income are getting higher. Previous studies in other countries show that more females than males work in the industrial sectors^{3,4}. In Indonesia, West Java Province is the second province that has a high number of female workers⁵. More than half of the labor force in West Java are female and the number of them is increasing during 2019-2021⁶. The Bekasi District, one of the districts in West Java, is included the top three areas that has a high number of female workers⁷. The majority of them work in the trade and service sectors, including the industrial sector. Based on the Profile of Indonesia Women 2019, the industry is one of the leading sectors that employ females as their workers⁸.

Most of the female workers are in the reproductive age (15-49 years old)⁹.

It means that they may experience their reproductive function such as pregnancy, delivery, and breastfeeding while they play the role as workers. The health status of the female workers should be in a good condition so that they can have a healthy pregnancy and a healthy baby. A Study in Makassar found more females worked in the manufacture and they were in the reproductive age¹⁰. The workload might cause reproductive health problems among the female workers³. Furthermore, the other study found work shift increased the risk to have hypertension and high blood sugar⁴. Hypertension may lead to premature birth¹¹. Therefore, it is important to know the health profile of female workers, so that the reproductive health risk among them could be identified to prevent morbidity and mortality among mother and child. However, study on the health profile and reproductive health risk among industrial female workers is limited. Thus, this study aims to describe the health profile of industrial female workers in Bekasi District and their reproductive health risks.

METHODS

This research was a quantitative study using a cross-sectional study design. A community-based survey in the industrial area of Bekasi District was conducted in November 2021. The population of this study was female workers who live in the Bekasi District area and work in the industrial sectors. Of 386 female workers categorized as reproductive age (15-49 years old) were recruited as respondents. This study used convenience sampling as the sampling technique.

A face-to-face interview by visiting the respondent's residence area was carried out to let the respondents fill in the questionnaire.

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The information about work-shift status following data were also collected from respondents: anthropometric (weight and height), body fat, blood pressure, hemoglobin level, and random blood sugar.

All respondents were asked for their willingness to voluntarily participated as respondents of this study. Each of them confirmed and signed the informed consent. The ethical clearance of this study was approved by the Ethical Commission of the Faculty of Health Sciences Syarif Hidayatullah State Islamic University Jakarta (Un.01/F.10/KP.01.1 / KE.SP /11.08.006/2021).

among respondent was obtained. The data of anthropometrics and body fat were used to determine the obesity status of respondent. Meanwhile, blood pressure was used for the indication of hypertension, hemoglobin level for anemia status, and random blood sugar for the risk of diabetes mellitus. Using univariate analysis, we described the health profile of respondents that include the status of obesity, risk of hypertension, risk of diabetes mellitus, and anemia status. The respondent was categorized as having reproductive health risk if they have one or more of those categories. These data were analyzed to know whether the respondents have a risk to experience a problem during pregnancy, delivery, and the potential to have a stunted baby.

RESULT

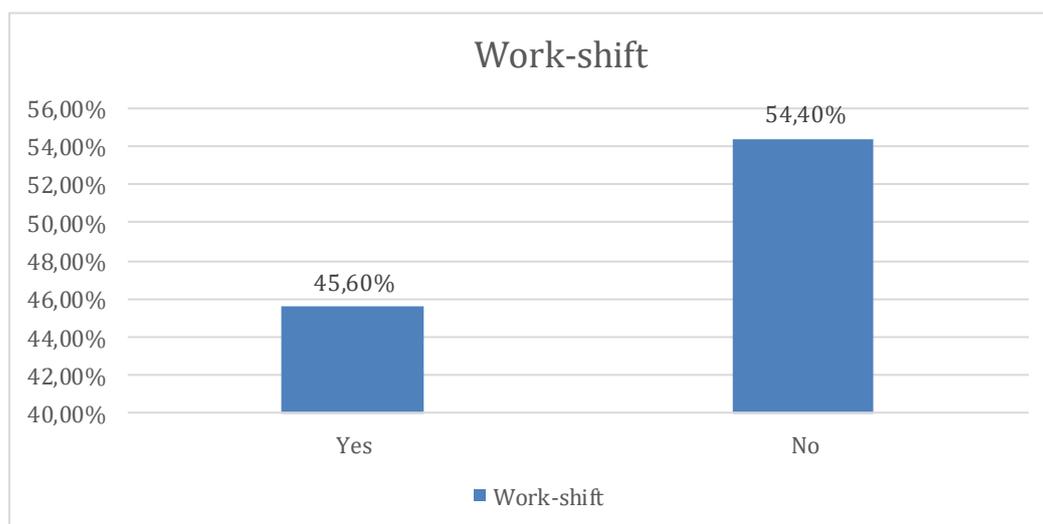


Figure 1. Distribution of Work-shift among among Industrial Female Workers in Bekasi District, Indonesia

In this study, 386 female workers of reproductive age participated as respondents. The workplace of respondents was spread over 47 companies located in the industrial area in

Bekasi District, Indonesia. Figure 1 illustrates that 45.6% of respondents had work-shift while the other 54.4% did not have it.

Table 1. Distribution of Risk of Obesity among Industrial Female Workers in Bekasi District, Indonesia according to Body mass index, Total body fat, and Visceral fat Measurement

	Percentage (%)
BMI	
• Obese	52.8
• Overweight	13.2
• Normal	27.2

• Wasting	6.7
Total Body Fat	
• High (obese)	72
• Normal	25.9
• Low	2.1
Visceral Fat	
• Very High	9.8
• High	22.7
• Normal	67.5

The health profile of female workers related to obesity was described in Table 1. The respondent who categorized as obese was varied depending on the measurement. Based on body mass index, it was found that 52.8% of respondents were categorized as obese. The

percentage of respondents who were obese was higher according to the measurement of total body fat (72%). The measurement of visceral fat indicated that 32.5% of respondents were categorized as obese.

Table 2. Distribution of Hypertension among Industrial Female Workers in Bekasi District, Indonesia

Category	Systole	Diastole
Suspected Hypertension	11.9	26.9
Suspected Pra-hypertension	28.5	34.7
Normal	57.8	36.8
Hypotension	1.8	1.6

The measurement of systole and diastole was performed to know whether respondents can get hypertension. Based on the measurement of systole blood pressure, 11.9% of

respondents were suspected of hypertension, while 26.9% were suspected of hypertension according to diastole blood pressure measurement (Table 2.)

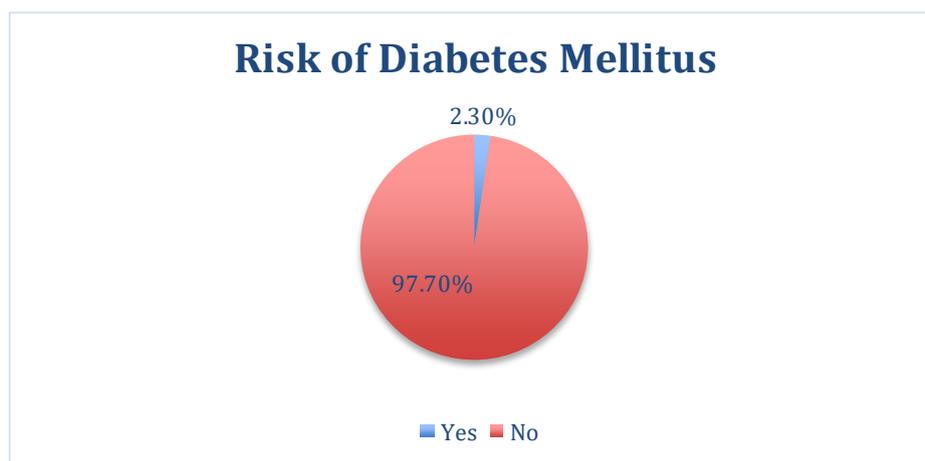


Figure 2. Distribution of Risk of Diabetes Mellitus among Industrial Female Workers in Bekasi District, Indonesia

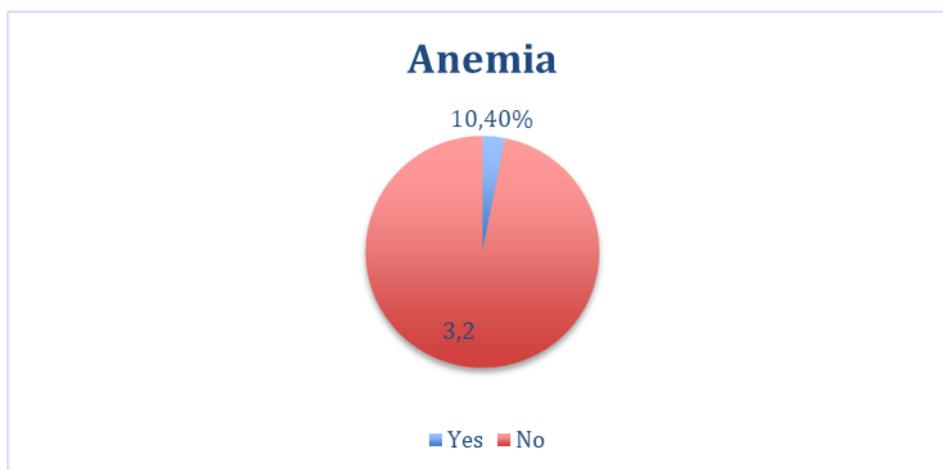


Figure 3. Anemia Status among Industrial Female Workers in Bekasi District, Indonesia

Table 3. The Reproductive Health Risk among Industrial Female Workers in Bekasi District, Indonesia

Having Reproductive Health Risk	Percentage (%)
Yes	88.3
No	11.7

The distribution of respondents who had a potential risk to get diabetes was 2.3% as depicted in Figure 2. The anemia status of respondents was indicated in Figure 3 with 10.4% of them having anemia. The result analysis showed that 88.3 % of respondents had risk to experience during pregnancy, delivery, and risk to have a stunted baby because of their health profile (Table 3).

DISCUSSION

In this study, the respondents were asked whether they had work shift or not. The result showed that 45.6% of them had the experience. Work shift is one factor that might affect the health status of female workers. A study by Martiana et al (2019) indicated that 71.4% of female workers who had work shifts experienced reproductive health disorder¹². Day and night work-shift has increased the risk of premature birth and low birth weight. Besides, the work shift affects heart activity which can lead to menstrual disorders.

A study in Korea found that 72% of female workers had work shift duty and this made them experience metabolic syndromes such as hypertension, prediabetes, or obesity¹¹.

Women with metabolic syndrome had a higher risk to have premature birth¹³. Higher diastolic blood pressure was also found among female work-shift workers¹⁴. The longer work-shift duration was linked to an increasing of blood sugar level and blood pressure⁴. The female workers who had afternoon and night shift tended to have premature birth and fetal growth disorder.

Obesity status in this study was measured by three indicators, namely body mass index, total body fat, and visceral fat. Of 52.8% of respondents were categorized as obese, while 6.7% were wasting. It is important to measure Body Mass Index (BMI) because it will influence the health status during pregnancy. BMI is positively related with a baby's birth weight and affects the linear growth of the baby. Low BMI might increase the risk of stunting¹⁵.

Based on the total body fat, 72% of respondents in this study were obese. The high percentage of total body fat will increase the risk of degenerative diseases like hypertension and diabetes mellitus which can cause maternal death, fetal death, and low birth weight. In addition, the low percentage of total

body fat also has negative impacts on female such as menstrual disorders, infertility, and problem in hormonal function. Besides the total body fat, the high percentage of visceral fat is also linked with diabetes mellitus risk that can increase the risk of maternal death, fetal death, and low birth weight. A study among female workers in Surabaya revealed that 73.1% of them had obesity status¹⁶. Obesity can cause pre-eclampsia during pregnancy because the obese condition might influence body metabolism and blood circulation¹⁷.

We found that 26.9% of respondents in this study were categorized as suspected of hypertension. Hypertension status can cause problems during pregnancy and delivery such as the risk of pre-eclampsia, eclampsia, and low birth weight. Hypertension become a serious health problem among female workers because of the high workload and long working hours³. The high level of diastolic blood pressure and cholesterol among women increases the risk of premature birth and fetal weight growth restriction¹³. Hypertension in the pregnancy was also found to be a risk of premature birth¹⁸.

The previous study also revealed that hypertension during pregnancy might increase the risk of morbidity and mortality to maternal and fetal¹⁹. In this study, we found that 26.9% of female workers had suspected to hypertension. The condition can lead to chronic hypertension if there is no intervention to improve the situation. Mothers with chronic hypertension had 5.15 times more likely to have small for gestational age²⁰. A study in Palembang found that there was a relationship between hypertension during pregnancy and low birth weight²¹. It was indicated that hypertension had an association with obesity and stress²². Therefore, it is crucial to pay attention to the health profile of women and to improve women's health status before pregnancy to prevent both maternal and infant morbidity and mortality.

Furthermore, most of the respondents (95.9%) in this study had normal random blood sugar tests. Only 2.3% of respondents were suspected of Diabetes Mellitus. Although the percentage of female workers in this study who had risk to diabetes mellitus was low, still

it is important to have awareness on this issue because 72% of respondents were obese and obesity might increase the risk of diabetes mellitus.

The other important health profile of female workers is anemia status. This study revealed that 10.4% of respondents were anemia (hemoglobin level <11 gr/dl). Anemia among female workers might increase the risk of complications during pregnancy. The negative effect of anemia is not only for female workers but also for the outcome of pregnancy. If the anemia female worker is pregnant, she has the risk to have premature birth, low birth weight, miscarriage, and bleeding²³. Anemia was found as a common condition among female workers in garment manufacture in Bangladesh³.

A study in Cambodia found that 31.45% of female workers were categorized as underweight and 26.9% had anemia²⁴. The female workers had a higher risk to have anemia compared to male workers and body mass index affects the anemia status^{25,26}. Anemia can cause bleeding during pregnancy and delivery and become a leading cause of maternal death²⁷. Anemia also had relationship with low birth weight cases²⁸.

Based on the analysis of health profile of respondents in this study, we found that 88.3% of industrial female workers in Bekasi District Indonesia have a risk to experience pregnancy and delivery problems. Moreover, the condition may also lead them to have a stunted baby. Thus, the work environment should be noticed because it may influence the health status of the workers and can lead to reproductive health risk for female workers^{29,30,31}. The data of health profile of female workers should be measured to decrease the reproductive health risk among them, especially when they experience pregnancy³².

CONCLUSION

The health profile of industrial female workers in this study indicated that most of them have problems with body mass index, total body fat, and blood pressure. They have a risk to obesity, diabetes mellitus, and hypertension. This health profile places industrial female workers to reproductive health risk, especially

related to pregnancy and delivery. They also have a risk to have a stunted baby if they experience pregnancy.

RECOMMENDATION

Intervention to industrial female workers is needed to prevent the health problem if they are pregnant and experience delivery. The routine health screening and education to improve their health status can support the other stage of life cycle.

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