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ORIGINAL ARTICLE

Dysmenorrhea and Seborrheic Dermatitis due to Occupational Stress Among Female Bank Workers

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ABSTRACT

Introduction: Bank workers who provide services to customers are required to have an optimal performance. They are vulnerable to stress that can interfere with their performance. Stress causes an increase in sebaceous glands, resulting in seborrheic dermatitis and an increase in hormones. This can cause contraction of the uterine muscles which can lead to dysmenorrhea. This study aims to determine the relationship between occupational stress and dysmenorrhea and seborrheic dermatitis among female bank workers. **Methods:** This research followed an analytic observational cross-sectional design using primary data from female workers at SumSel Babel Bank A. Rivai Branch. The sample consisted of 75 female bank workers, who met the inclusion and exclusion criteria and were selected using consecutive sampling. The independent variable in this study was occupational stress, while the dependent variables were dysmenorrhea and seborrheic dermatitis. Data were collected from primary data, the workplace stress scale questionnaire for occupational stress, the WaLIDD score for dysmenorrhea, and seborrheic dermatitis examination by a dermatologist. After obtaining the data, bivariate analysis was performed using the Chi-square test. **Results:** Sixty respondents (80%) had occupational stress, 47 respondents (62.7%) experienced dysmenorrhea, and 69 respondents (92%) did not experience seborrheic dermatitis. The results of statistical tests showed that there was a relationship between occupational stress and dysmenorrhea in female bank workers with a p-value 0.000 and no significant relationship between stress and the incidence of seborrheic dermatitis with p-value 0.202. **Conclusion:** Occupational stress can cause health problems including dysmenorrhea in female workers.

Keywords: dysmenorrhea, seborrheic dermatitis, occupational stress

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INTRODUCTION

The number of female workers in Indonesia continues to increase every year. The percentage of female worker reached 35.57% in 2022, while male workers was 43.97% (Susiana, 2019; BPS, 2023). Workers are the main asset that are important in the sustainability of a company. Every worker is exposed to various risks that can cause occupational health problems, such as emotional stress or physical disturbances (Nurani, Wahyuni and Jayanti, 2017). Working women are faced with a dilemma over the determined vision and mission of the company they work at while also being responsible for the roles that they must fulfill (Laeli Widodo and Sukarno, 2021). The banking industry is also not immune from occupational stress. A number of studies on occupational stress in the banking industry have shown that the occupational stress among banking employees in Indonesia is quite high. Bank workers are faced with work pressure, uncomfortable workspace, and working conditions that can cause occupational stress (Zulkifli, Rahayu and Akbar, 2019). Because bank workers are in the service sector, their appearance is important. Seborrheic dermatitis can interfere with the appearance of bank workers. Workers who experience dysmenorrhea may experience decreased performance, which leads to a decreased service. When experiencing stress, body overproduces hormones which cause an increase in uterine contraction, causing uterine muscle tension. This condition may result in pain

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and menstruation (Amrianah, 2019; Putri, Mediarti and Noprika, 2021; Sari and Dasuki, 2021). Stress can increase the amount of sebum production in the scalp through hypothalamic adrenal pituitary (HPA axis) activity as a response to stress. Increased sebum can induce Malassezia proliferation and trigger seborrheic dermatitis (Sarac and Goncu, 2022).

Dysmenorrhea is a type of chronic recurring pain that manifests as abdominal cramps during menstruation. When experiencing stress, the body will produce excess prostaglandin hormones, causing uterine muscle tension. This condition will cause pain and menstruation (Mantolas, Sri Nurwela and Gerontini, 2019; Abreu-Sánchez *et al*., 2020). The incidence of dysmenorrhea is widespread all over the world. In Bangladesh the incidence of dysmenorrhea is reported at 59.8%, in Egypt it is 35%, and in South Korea it is 0.9%. Studies in Italy show a prevalence of dysmenorrhea of 84.1% and in Indonesia 64.25% (Septianingrum and Hatmanti, 2019). Most patients with seborrheic dermatitis state that the disease can be triggered by psychological stress. Disease severity may increase during times of stress (Sarac and Goncu, 2022). Seborrheic dermatitis affects 1-5% of the world's population. In Asia, it varies from 2.1% in South Korea to 26.5% in Indonesia. Data from the Ministry of Health showed that from 2013 to 2015 patients with seborrheic dermatitis in skin and genital polyclinics in various hospitals in Indonesia were between 0.99% and 5.8% (Sandra, 2018). Research on dysmenorrhea and seborrheic dermatitis in female workers is rare. Research on occupational stress has been done at SumSel Babel Bank, but no research has connected it with diseases that can occur such as dysmenorrhea and seborrheic dermatitis which are closely related to stress. SumSel Babel Bank is a regional development bank of South Sumatra and Bangka Belitung. SumSel Babel Bank's Kapten A. Rivai main branch in Palembang is competitive with other banks. Optimal performance of workers is needed to provide optimal service; therefore, research is needed to determine the level of stress and its effects, such as dysmenorrhea and seborrheic dermatitis. With regards to this background, we were interested to conduct this research. The purpose of this study was to determine the incidence of dysmenorrhea and seborrheic dermatitis and the factors that affect them in female workers.

METHODS

This research used observational analytic with cross-sectional design. The research was conducted at SumSel Babel Bank Captain A. Rivai Branch in Palembang from October to December 2022. Population of this study was female workers at this bank. The sample in this study was female workers who fit the inclusion and exclusion criteria. The inclusion criteria were willing to be respondents and had not experienced menopause. Exclusion criteria included having a history of reproductive disorders, hepatitis, malignancy, and chronic alcoholism. This study used a consecutive sampling technique. The number of respondents who met the inclusion and exclusion criteria was 75 respondents.

The independent variable in this study was occupational stress and the dependent variables were dysmenorrhea and seborrheic dermatitis. Other variables were also examined in this study, which were age, marital status, education, and years of service. Data were collected from primary data by using the workplace stress scale questionnaire for occupational stress variables, the WaLIDD score for dysmenorrhea variables, and seborrheic dermatitis examination by a dermatologist. This questionnaire used a Likert scale comprising eight questions with choices consisting of never (1), rarely (2), sometimes (3), often (4), and very often (5). Meanwhile, statements numbers 6, 7, and 8 were given reverse scores. The scores were then summed up. A total score of ≤ 15 was classified as not experiencing stress, while a total score of >15 was classified as experiencing stress. The dysmenorrhea questionnaire consisted of four questions based on WaLIDD score. Working ability was scored 0 for none, 1 for almost never, 2 for almost always, and 3 for always. Location was scored 0 for none, 1 for one site, 2 for 1-3 sites, and 3 for four sites. Intensity was scored 0 if no pain, 2 for mild pain, 3 for moderate pain, and 4 for severe pain. For number of days of pain, 0 if there was no pain, 1 for 1-2 days, 2 for 3-4 days, and 3 for >5 days. The scores were summed, and scores between 1 and 4 were categorized as no dysmenorrhea, while scores between 5 and 16 as dysmenorrhea.

After the data were obtained, a bivariate analysis was performed using the Chi-square test. Ethics approval for this research was obtained from the Ethics Committee of medical faculty Universitas Muhammadiyah Palembang (project number 013/EC/KBHKI/FK-UMP/X/2022).

RESULTS

Respondents in this study met the inclusion and exclusion criteria, and then several predetermined variables were examined. The characteristics studied in this study were age, marital status, education, years of service, occupational stress, incidence of dysmenorrhea and seborrheic dermatitis. The following are the results of the questionnaire completed by the respondents:

Based on Table 1, the majority of the respondents were aged 25 years, with a total of 58 respondents (77.4%). Over half of the respondents were married (54.7%), 57 respondents (82%) had a higher degree of educational level, and 78.7% had more than three years of service. Sixty respondents

Table 1. Distribution of Female Workers at SumSel Babel Bank in December 2022

Variable	Frequency	Percentage (%)
Age		
15- 25 years	17	22.6
>25 years	58	77.4
Marital Status		
Married	41	54.7
Not Married	4	45.3
Education		
Senior high school	6	8.0
College/ University	69	82.0
Years of Service		
>3 years	59	78.7
<3 years	16	21.3
Occupational Stress		
No stress	15	20.0
Stress	55	
a. Mild	17	
b. Moderate	35	
c. Severe	8	80.0
Dysmenorrhea		
No	28	37.3
Yes	47	62.7
Seborrheic dermatitis		
Positive	6	8.0
Negative	69	92.0
Total	75	100

Table 2. Assessment of Occupational Stress and Dysmenorrhea of Female Workers at SumSel Babel Bank in December 2022

Variable	Frequency	Percentage (%)
Occupational Stress		
Conditions at work are unpleasant or sometimes even unsafe		
Never	17	23
Seldom	17	23
Sometimes	28	37
Often	12	16
Very often	1	1
Work has a negative impact on physical and emotional health		
Never	15	20
Seldom	20	26
Sometimes	35	47
Often	5	7
Very often	0	0
Too much work and/or too many unreasonable targets		
Never	15	20
Seldom	18	24
Sometimes	33	44
Often	8	11
Very often	1	1
Difficulty to convey opinions or feelings about working conditions to superiors		
Never	15	20
Seldom	19	25
Sometimes	32	43
Often	8	11
Very often	1	1
Work pressure is interfering with family or personal life		
Never	18	24
Seldom	20	27
Sometimes	29	39
Often	7	9
Very often	1	1
Have sufficient control or input on tasks		
Never	5	6
Seldom	30	40
Sometimes	33	44
Often	5	7
Very often	2	3

experienced occupational stress (80%), 17 of whom fell into the mild stress category, 35 fell into the moderate stress category, and eight respondents experienced severe stress. Just over 62.7% or 47 respondents experienced dysmenorrhea, and 69 people (92%) did not experience seborrheic dermatitis.

Advanced Table 2. Assessment of Occupational Stress and Dysmenorrhea of Female Workers at SumSel Babel Bank in December 2022

Variable	Frequency	Percentage (%)
Receive appropriate recognition or rewards for good performance		
Never	1	1
Seldom	19	25
Sometimes	47	63
Often	8	11
Very often	0	0
Able to use skills and talents to the fullest in the workplace		
Never	14	19
Seldom	31	41
Sometimes	27	36
Often	30	40
Very often		
Dysmenorrhea		
Dysmenorrhea interferes with daily activities/work		
Never	32	42
Almost never	24	32
Almost always	11	15
Always	8	11
Location of pain when experiencing dysmenorrhea		
None	29	39
Pain in one site (e.g. lower abdominal area)	21	28
Pain in 2-3 sites (e.g. lower back, lower legs, and pelvis)	22	29
Pain in four sites (e.g. lower abdomen, lower back area, lower leg, pelvic area)	3	4
Intensity of pain when experiencing dysmenorrhea		
No pain	32	42
Mild pain	23	31
Moderate pain	17	23
Severe pain	3	40
Long dysmenorrhea (painful menstruation) is common		
0 (no pain)	32	43
Pain for 1-2 days	19	25
Pain for 3-4 days	16	21
Pain ≥ 5 days	8	11

Based on Table 2, 37% of the respondents felt that sometimes conditions at work were unpleasant or even unsafe. Almost half of the respondents said that work had a negative impact on physical and emotional aspects. Forty-four percent of the respondents found too much work and/or too many targets were not reasonable, 43% found it difficult to express opinions about working conditions to superiors, 39% felt that work pressure interfered with family or personal life, 44% had sufficient control or input on tasks, and more than 60% received appropriate recognition or reward for good performance. Almost half (42%) of the respondents rarely used their skills and talents to the fullest in the workplace. Assessment of dysmenorrhea found that 42% of respondents felt that dysmenorrhea never interfered with daily activities/work, there was no pain both at the location of pain (39%) and duration

Table 3. Relationship between Occupational Stress, Age, Marital Status, Years of Service, and Education with Dysmenorrhea and Seborrheic Dermatitis of Female Workers at SumSel Babel Bank in December 2022

	Dysmenorrhea			Seborrheic dermatitis		
	Yes	No	p value	+	-	p value
Occupational Stress						
Yes	46	14	0.000	6	54	0.202
No	2	13		0	15	
Age			0.280			0.613
15-25	9	8		2	15	
>25	39	19		4	54	
Marital Status			0.773			1.000
Not Married	21	13		3	31	
Married	27	34		3	38	
Years of service			0.467			1.000
>3 years	39	20		5	54	
<3 years	9	7		1	15	
Education			0.456			0.451
Senior high school	3	3		0	6	
College/ University	45	24		6	63	

of pain (42%), and 43% did not feel pain during menstruation.

Based on Table 3, the majority of the respondents experienced stress with dysmenorrhea with a p value of 0.000 (p <0.05), and stress but negative seborrheic dermatitis with a p value of 0.202 (p <0.05). Respondents aged > 25 experienced dysmenorrhea with a p value of 0.280 (p <0.05), while those aged > 25 years had negative seborrheic dermatitis with a p value of 0.613 (p <0.05). The p value of married female workers with no dysmenorrhea was 0.773 (p <0.05), and the p value of married respondents with negative seborrheic dermatitis was 1,000 (p <0.05). Respondents whose years of services > 3 years experienced dysmenorrhea with a p value of 0.467 (p <0.05), and those whose years of service > 3 years with negative seborrheic dermatitis had a p value of 1,000 (p <0.05). Female workers with higher level of education with dysmenorrhea had a p value of 0.456 (p <0.05), and those with higher level of education and with negative seborrheic dermatitis had a p value of 0.451 (p <0.05).

DISCUSSION

Characteristics of Respondents

This study found that most respondents (77.4%) were aged > 25 years. More than half were married, 82% had higher level of education, 78.7% worked in the bank > 3 years, 80% suffered from stress, 62.7% had dysmenorrhea, and 92% did not experience seborrheic dermatitis. Age often has a close relationship with work productivity which can impact on achievement and job satisfaction. Workers' age, tenure, and education can also affect their performance and job satisfaction (Karim and Tajibu, 2018).

The higher the level of education, the higher the level of difficulty of the job. Marital status is one of the factors that can cause conflict between work and family. As age increases, physiological factors can also decline, such as memory and strength, and problems may become more complex. A long working period may help adapt to the work environment and control existing problems, so stress is likely to occur more often in the new working period (Mustakim and Putri, 2023). Bank workers are vulnerable to have occupational stress because they have enormous responsibilities. Occupational stress can occur when the number of tasks completed is not proportional to the physical abilities and skills and time available at work (Amrianah, 2019).

Stress is one of the conditions known to be associated with seborrheic dermatitis due to increased activity of the sebaceous glands and decreased immunity, making it easier to be infected by fungi. One of the causes of dysmenorrhea is a psychological factor, namely stress, which is an individual's response to circumstances or events which can threaten and interfere with a person's ability to function. Stress can disrupt the function of the endocrine system, resulting in irregular menstruation and dysmenorrhea (Putri, Mediarti and Noprika, 2021; Sari and Dasuki, 2021).

Occupational Stress

The majority of respondents (80%) experienced occupational stress. This is in line with research on the level of occupational stress of workers of BRI Bank Watansoppeng branch in Makassar where up to 40% experienced a moderate level of occupational stress (Khaeriyah, 2018). Based on the stress factor, the majority complained about occasional unsafe working conditions. Work had a negative impact on physical and emotional functioning. Other factors were too much work and or too many unreasonable targets, difficulty with expressing opinions about working conditions to superiors, work pressure interfering with family or personal life, insufficient control or input over tasks, and appropriate recognition or rewards for good performance. We found that the majority of the respondents complained that they rarely used their skills and talents to the fullest in the workplace. This is in line with research findings which showed that most of the subjects had a high level of occupational stress. In general, the main sources of stress at work are workload, work patterns and work environment, control over their work, encouragement, and sponsorship resources provided by the organization (Hidayati and Harsono, 2021; Pratiwi and Betria, 2021).

Organizational factors can affect occupational stress in employees because all activities within the company are related to employees. These factors include work demands or workloads that are too heavy, and work that requires high responsibility. The respondents of this research revealed that time with family, especially with their children, was limited because they worked from morning to evening, so they did not have much time with their families. Social environmental factors have

a significant influence on the level of occupational stress experienced by employees. Support provided by coworkers and the work environment has an important role in boosting a person's motivation and well-being in carrying out tasks. Lack of social support and a supportive environment can be one of the factors that causes stress in employees (Tulus, Naharia and Kapahang, 2023).

Dysmenorrhea

From the results of the study, it was found that the percentage of incidence of dysmenorrhea in female workers was 62.7%. The incidence of dysmenorrhea is very high worldwide, with an average of 16.8-81% of women experience this menstrual pain. In Indonesia, it is estimated that 55% of women of reproductive age are tormented by menstrual pain (Sefti *et al*., 2019; Iis and Rohaeni, 2022). Dysmenorrhea is one of the most common gynecological disorders experienced by women. Between 50% and 90% of women experience dysmenorrhea, and an estimated of 10%-20% of women miss work (absenteeism) or experience decreased productivity (presenteeism).

An occupation as a bank employee is one of the jobs that does not rely on physical activity. Previous research also shows that the physical activity of bank employees is lower than that of other office employees. The intensity of dysmenorrhea will increase with lack of physical activity because it affects the uterus, resulting in reduced blood flow and oxygen circulation which causes pain (Sugiyanto and Luli, 2020; Nadira, Nurul and Prawiradilaga, 2021).

Occupational Stress and Dysmenorrhea

Stress is an unpleasant psychological condition that can burden one's self and soul beyond the limits of one's ability, and if left unchecked will affect one's health. Stress is a major factor causing menstrual disorders such as menorrhagia, oligomenorrhea, premenstrual syndrome, and dysmenorrhea (Rafique and Al-Sheikh, 2018). The results of this study showed that the majority of respondents experienced stress with dysmenorrhea (88.6%) with p value 0.000 ($p < 0.05$), indicating that there is a significant relationship between occupational stress and dysmenorrhea in female bank workers. This also accords with the results of other research that found that there is a relationship between levels of occupational stress and menstrual pain (dysmenorrhea) in sewing machine operators. The higher the stress level, the greater the risk of dysmenorrhea (Widianti, 2019). Occupational stress could be found easily in bank workers because they have heavy duties and responsibilities. Bank workers can suffer from occupational stress because they have to meet targets set by their superiors within a short period of time. Other problems include workload that is not in accordance with the job description and capacity of workers, delays in promotions, suboptimal staff evaluations, rewards given to employees who do not perform well, and a mismatch between the level of education or expertise and the tasks assigned to employees (Amrianah, 2019).

Menstrual pain or dysmenorrhea is a common problem. The degree of pain varies from mild to severe which requires rest and medication to relieve the pain. Another study shows that most married female workers aged 26-35 years who have given birth experience dysmenorrhea (Widianti, 2019). Dysmenorrhea is usually experienced by women of childbearing age. Women aged 25 years may experience an increase in pain until the age of 35 years. The incidence of dysmenorrhea is high worldwide, with an average of more than 50% of women in every country suffering from menstrual pain. Dysmenorrhea can increase with lack of physical activity because it affects the uterus. This causes reduced blood flow and oxygen circulation which causes pain. This is in line with another study of the relationship between physical activity and level of dysmenorrhea, which shows that there is a significant relationship between physical activity and the level of dysmenorrhea (Sugiyanto and Luli, 2020).

Factors that can affect dysmenorrhea are stress, endocrine factors, early age menarche, long menstrual periods, family history, lack of exercise, obesity and exposure to cigarette smoke. Excessive levels of prostaglandin PGE and PGF2 alpha can stimulate myometrial contractions, causing increased contractions and dysrhythmias in the uterus. Prostaglandins in women who experience dysmenorrhea have levels 5–13 times higher than women who do not experience dysmenorrhea (Tsamara, Raharjo and Ardiani Putri, 2020). The reproductive organs of women who experience menstruation at a young age are not yet functioning optimally and are not ready to cope with changes in the uterus. This may result in dysmenorrhea. Menstruation that is longer than normal or hypermenorrhea (> 8 days) results in stronger contractions in the uterus and increases

prostaglandins (Horman, Manoppo and Meo, 2021). Having a family history of dysmenorrhea can lead to dysmenorrhea because a person is anatomically and physiologically similar to their descendants (Wariyah, Sugiri and Makhrus, 2019). Exercise helps the body releases endorphins which will trigger the release of one of the opiate receptors, namely Beta-endorphins, which have effective properties in reducing pain (Silaen, Ani and Puti, 2019). Excessive fatty tissue results in hyperplastic blood vessels in the reproductive organs, so the blood that should flow during the menstrual process is disrupted, and it causes dysmenorrhea (Putri and Fetty, 2021). Vasoconstriction of blood vessels will cause ischemia and trigger the release of prostaglandins (Nurfadillah, Maywati and Aisyah, 2017).

Seborrheic Dermatitis

From the results of this study, the majority of female workers or 69 people (92.0%) did not experience seborrheic dermatitis. This is in accordance with the finding of research which found that of 25 respondents, nine respondents were found to have seborrheic dermatitis, while 16 respondents did not. Seborrheic dermatitis is a chronic inflammatory disease that usually occurs in areas rich in sebaceous glands. Seborrheic dermatitis lesions are usually in the form of erythematous patches and plaques accompanied by oily scales. Malassezia species, which are normal flora of human skin, are thought to play an important role in the pathogenesis of seborrheic dermatitis. This can be seen from the distribution of seborrheic dermatitis lesions that are scattered in the sebaceous gland area, which is the Malassezia colony area (Dewi, 2022).

Seborrheic dermatitis is a type of papulosquamous dermatitis with a predilection for areas with many sebaceous glands, scalp, face and trunk. This disease is often associated with immunological disorders, but more often associated with Malassezia fungi. Seborrheic dermatitis can occur in all age groups, but is usually separated into two age groups: infants and adults. Seborrheic dermatitis has many precipitating factors, especially high oil levels and humidity (Kalalo, Pandeleke and Gaspersz, 2019). There are several factors that influence the incidence of seborrheic dermatitis, including increased sebum production in the sebaceous glands, individual susceptibility factors, environmental factors (environmental temperature and humidity), fungi (Malassezia spp.), genetics, hormonal and neurogenic factors, and external factors (climate, stress, nutritional disorders, drugs) (Sandra, 2018).

Occupational Stress and Seborrheic Dermatitis

The results of this study showed that there was no significant relationship between stress and a p value of 0.202 ($p > 0.05$). This study is in line with the results of previous research which showed that there was no relationship between stress levels and the incidence of seborrheic dermatitis. Another influencing factor is related to the cause of seborrheic dermatitis. The exact etiology of seborrheic dermatitis is not known, but many argue that seborrheic dermatitis is caused by three interconnected main factors: sebum production, Malassezia spp. fungi, and the vulnerabilities of each individual (Argirov and Bakardzhiev, 2017). Other risk factors that affect seborrheic dermatitis include genetics, age, gender and other diseases. Inherited genetic factor is one of the risk factors for the development of seborrheic dermatitis. This may be related to the defense barrier of the stratum corneum of each individual and differences in the body's immune response in dealing with proteins and polysaccharides derived from Malassezia (Tucker and Masood, 2022).

Inflammation of skin usually manifests clinically as pink scaly and itchy lesions. Papulosquamous efflorescences appear widely spread in areas rich in sebaceous glands such as the scalp, face, body folds and trunk. Seborrheic dermatitis can be caused by immunologic abnormalities or other external circumstances. Seborrheic dermatitis itself is a skin disease in which psychological factors play a major role in symptom onset, exacerbation and remission. Stress factors, emotional states, fatigue and depression can trigger seborrheic dermatitis. The central nervous system (CNS) and skin are linked by embryology, so hormones, neurotransmitters and receptors are the same in both (Gül, Karaaslan and Çölgeçen, 2017; Al Juman *et al*., 2021).

Seborrheic dermatitis has a bimodal distribution, can occur in infants aged two weeks with a peak at two months of age, adolescents, and young adults when the sebaceous glands are active with a peak in the third and fourth decades of age (Widianti, 2019). Men are more likely to develop seborrheic dermatitis than women because of the production of more androgen hormones in males. The prevalence of seborrheic dermatitis increases in individuals with immunosuppression, one of which is Human Immunodeficiency Virus/Acquired

Immunodeficiency Syndrome (HIV/AIDS). This is associated with reduced body resistance in people with HIV/AIDS. Consequently, the number of Malassezia continues to increase in the epidermis (Tucker and Masood, 2022).

CONCLUSION

Most respondents experienced stress and dysmenorrhea and did not experience seborrheic dermatitis. Stress has a significant relationship with the occurrence of dysmenorrhea, but it has no significant relationship with seborrheic dermatitis. Workers are encouraged to manage stress to reduce the number of stressful events by getting enough rest and exercising regularly.

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